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DOMINION DENTAL JOURNAL

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Original Communications

REMOVABLE BRIDGEWORK AND ITS APPLICATION AS COMPARED WITH FIXED BRIDGEWORK

S. MARSHALL WEAVER, D.D.S., Cleveland, Ohio.

Read before the Toronto Dental Society, December, 1912.

When asked to write a paper on removable bridgework, the first question coming to my mind was: Am I in favor of removable bridgework? If so, how much?

In taking up this question, we immediately encounter the two extremists: One advocating removable bridgework for every case, the other having no use for it at all.

As in most all branches of dentistry, the man who studies the case in hand and comes to a decision by carefully weighing all sides of the question, will be the best example to follow, and, this will be the line of thought I will try to give you this evening.

I shall endeavor, in a brief manner, to call your attention to the merits and demerits of both fixed and removable bridgework and to point out a few of the factors which make the success or failure of the work.

Since bridgework first became a recognized factor in the practice of dentistry, one of the greatest objections to the employment of this form of denture, has been its irremovable character and the inability to properly cleanse.

Bridges are made and put together in such a manner that it is impossible to thoroughly cleanse them, consequently, the mouth becomes so foul as to be almost unbearable.

The odor coming from the mouth containing improperly constructed bridges, even when they receive the best of care, is peculiar to this kind of work.

Many of these conditions are not the fault of the dentist, but the carelessness of the patient.

There are many parts which cannot be reached by the brush and afford places for lodgement of food which becomes decomposed.

This decomposition of food-stuff, the resulting foulness of the mouth and the disagreeable odor arising from such conditions, are perhaps not the worst features of cases of this kind.

The general health of the patient may be greatly affected by the serious pathological conditions arising from the illfitted and uncleansed bridges.

When the local disturbances are not taken care of, they result in the loss of the abutments and many times cause the loss of adjacent teeth.

The most common sight is to see hypertrophied conditions around the abutments exuding pus in large quantities.

These are the conditions gentlemen, that cause many of our older and best operators to condemn bridgework, and rightly they may, for these are the conditions leading some of the younger men to try to solve the solution in a more thorough manner.

One trouble is, there is less time given to this class of work in our colleges than most any other branch.

In a great many cases the prosthetic work may have been done admirably, but little or no attention is given to that part of the work on which success or failure of bridgework entirely depends, which is the position, condition and preparation of the abutments which are to serve as supports for the bridgework.

We read a great deal about different styles of abutments, ways of making cusps and various other technicalities, but very little about the preparation of a perfect abutment, the foundation upon which success or failure must stand.

It is my intention to only touch upon this all important work, for I was requested to deal more with the prosthetic side.

I have only touched upon a few of the objections of fixed bridgework and particularly the ones that may be overcome by removable bridgework.

With the advent of removable bridgework, the possibilities of bridgework have been greatly increased.

Many cases where fixed bridgework would not be advisable and a plate would have to be advised, the removable bridge comes in to fill the great want.

For example: extention saddles, such as exhibit A, this case positively could not be made fixed and give satisfaction.

In this half-way stage between bridges and plates, the removable bridge or bridge-plate, has its greatest usefulness.

Aside from the increased possibilities which removable work presents, one of the most important to be considered is the hygienic standpoint.

Another great point is the ease with which it can be repaired in case of accident.

A loosened abutment can be re-cemented without any inconvenience and little expense to the patient.

A condition that makes you say "Damn," is when a shell crown loosens on one end of a fixed bridge with a porcelain dowel crown on the other.

In filling an adjoining tooth to a removable bridge, the rubber dam can be adjusted and the work accomplished with perfect ease; not so with the fixed bridge.

One of the most valuable points in removable bridgework, is the possibility to follow up any absorption by adding to the saddle either with gold or vulcanite: also any point of irritation can be adjusted perfectly.

The value of removable bridgework depends entirely upon the accuracy with which the work is done: there is an exactness that must be carried out or the piece is worthless.

A well-made fixed bridge is much to be preferred to a poorly made removable one and would give much better satisfaction.

We also have the fixed-removable work which fills another important field, that of taking care of loose abutments more satisfactorily than any other method yet devised.

This is accomplished in many ways, all depending on the ingenuity and skill of the operator and the demands of the case.

The principle consists in having a permanent coping cemented on each abutment, and, the bridge proper fitting over these, attached by means of iridio platinum screws, tapered lock pins, self-locking hinge joints or most anything that your imagination can devise, so the operator can remove the work at his pleasure in case of accident or trouble with any of the abutments

This is especially adaptable in mouths where pyorrhea exists. These abutments are nearly always loose and move up and down in the sockets, and by experience you know how hard it is to place a fixed bridge on these cases and get good results, but with appliances such as screws to draw each abutment down into the bridge abutment receptacle and hold them firm and in perfect position, the root trouble is greatly lessened, also the bridge can be removed and the roots scaled at the option of the operator, which is a great advantage and adds greatly to the life of the teeth.

I will now take up the technique of the most essential devices used in the different classes of removable bridgework.

We will first take up the telescope crown, the foundation of all removable bridgework.

In the construction of the style of attachment which involves a gold telescope crown and split post, the tooth is devitalized and prepared as for a full gold crown, the occlusal surface being cut off enough to allow a good thick cusp.

A band is then made of 28 gauge coin gold, "by the hickory stick method" so its sides are parallel or slightly larger at the *cervical end*, this is accomplished by cutting the band on a slant. Fig. 1.

Fit the band to the abutment, properly festooning it, having the band pass just under the free margin of the gum. Now mark around the inside of the band level with the top of the abutment, remove and cut to line and file flat, sweat on a floor of 28 gauge coin gold, dress off flush with band and polish with pumice, then with twist drill of proper size to admit the tubing, drill a hole of sufficient depth into the tooth to give the required grip on the abutment, at the same time having it parallel other abutments.

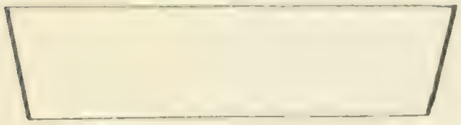

Fig. 1.

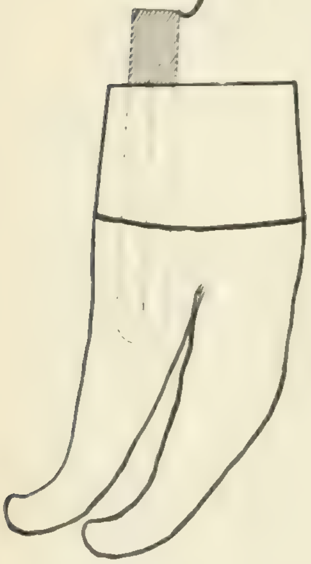

Fig. 2.

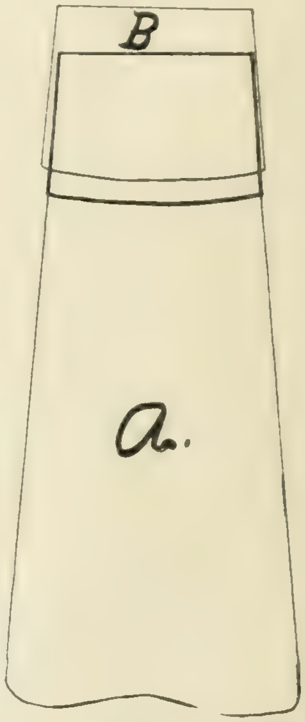

Fig. 3.

Place the gold cap on the abutment and pass the drill through the floor opposite the one previously drilled in the tooth, insert tubing to bottom of hole and allow it to protrude through floor sufficiently to ensure its proper alignment in the impression. Fig. 2.

Now take an impression with Metalline or plaster, remove and run with Imperial investment, or any other good soldering investment.

When hard, solder with 22k. solder, throw in water and cleanse in acid.

Make a funnel of paper or of wax an inch or two long, fitted tightly around band and fill with low fusible metal. Fig. 3 (a) Rubber tubing is also convenient.

An outer band of coin gold is made a little smaller and driven on over the reinforced inner cap to within about 1-32 inch, or just above the gum line. Fig. 3 (b).

Now cut off and file flush with the inner cap and sweat on a floor; next puncture through the floor into the tube and cut to proper size to admit the split pin; fit pin in tube, allowing it to protrude 1/8 inch or more, press on some metalline and cool.

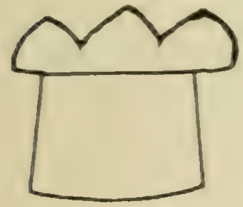

Fig. 4.

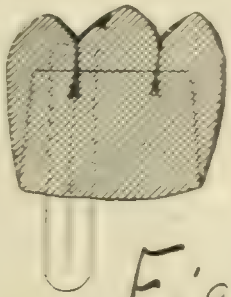

Fig. 6.

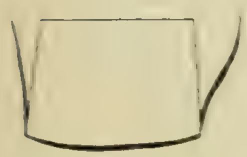

Fig. 5.

Fig 7

Remove and pour investment in crown around pin. Work some stop-out material into crack of post to prevent solder from flowing before impression is taken.

When pin is soldered thoroughly, cut it off 1-32 inch above floor, so when cusp is soldered on, it will have a good grip on the pin.

Remove shell from fusible metal by boiling in water, cleanse in acid and place both in position on tooth, place wax on top of telescope and form cusp allowing it to extend over the sides as far as contour is required. Fig. 4.

Remove and cast. When cast place in position and solder with 22K solder, contouring from cusp to cervical edge with solder.

The contouring can also be put on by the wing method. Fig. 5.

When the telescope is in place, it presents the appearance of a perfectly contoured crown. Fig. 6.

The split-posts are made by bending half-round iridio platinum wire on itself and caught with a small particle of pure gold, then file or turn to fit the size tube required. Fig. 7.

This attachment can be varied to suit any or most all cases.

We will now take up the *removable* attachment. The teeth are cut off 1-16 inch above the gum and fitted with copings similar to a Richmond crown.

Put as heavy a pin into the root as it will stand, and thoroughly roughened, having it pass through the floor and soldered securely.

Take a piece of iridio platinum wire 1-8 inch square and drill a 1-16 inch hole through the centre lengthwise, cut off ⅛ inch in length or more, if the case will admit, solder this to the lingual occusal side of the coping, if you are going to use a porcelain facing, and if not, the nearer the centre of the coping the more strength is acquired.

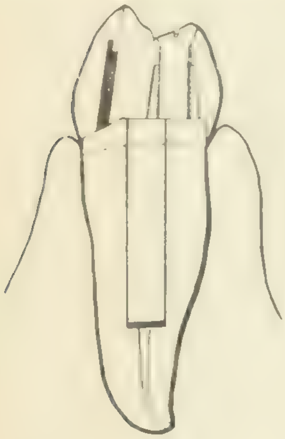

Fig. 9.

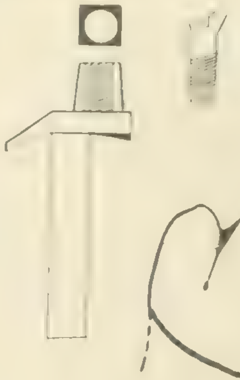

Fig. 8.

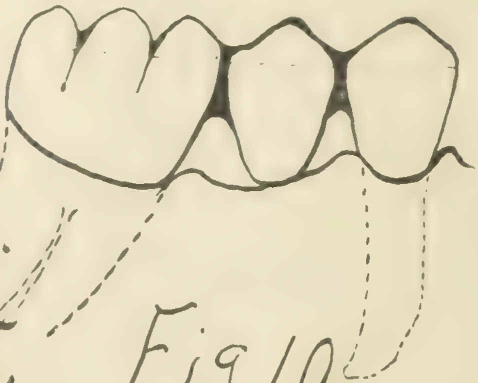

Fig. 10.

To prevent solder from flowing up on the inside, fill it full of stop-out material.

When soldered securely, file to the shape of a truncated pyramid. At this stage you will have a coping resembling Fig. 8.

After this coping has been filled, (as in Fig. 3) with fusible metal, suage a piece of 36 guage 24K. gold over the top of this coping.

It may break over the pyramid, which does no harm, burnish and suage over the edge, making a band nearly as long as the coping band, trim off, anneal and re-fit until it fits the top and sides perfectly.

Fit a graphite point into the screw hole of the pyramid large enough so it will keep the direction of the hole, and long enough so it will just protrude through the wax when the crown is completed ready for casting.

This graphite point allows the drill to follow accurately into the centre of hole in pyramid, thereby running no risk in missing the centre of pyramid and spoiling your piece of work.

If Steel's facings are to be used, grind to place, wax up the entire contour and cast.

After casting, place crown on coping and drill out graphite point and enlarge to the desired diameter, counter-sink the hole on the occlusial end to receive a square-shouldered screw, or tapered if desired.

The hole in crown is made slightly larger than the one in pyramid, for it is not to be threaded.

Then tap the pyramid, being careful not to spoil the thread. Make the screw of iridio platinum wire.

When completed, you should have a cross-section resembling Fig. 9.

Remember, all the drilling and tapping, with the exception of that done on the pyramid, is done after the bridge is finished.

All of this work is done on a fusible metal model.

Richmond's metal is used principally, or any metal that will melt in hot water.

One great point in all kinds of bridgework is to have the dummies attached high on the abutment, leaving a free space for the gum around each abutment.

Ninety-five per cent. of the bridges coming into your office, you will find the worst condition at this point generally caused by impingment of the tissue. Fig. 10.

SUMMARY.

The Advantages of Removable Bridgework: 1. Hygienics; 2. Restoration of Lost Tissue; 3. Esthetics.

Some Disadvantages: 1. Excessive Strain on Abutment if slightly Loose, caused by Frequent Removal; 2. The Necessity of the Destruction of Every Pulp; 3. Bulk; 4. Expense to Patient.

Cases Where Removable Work is Indicated: 1. Where Abutments are strong and Immovable; 2. Where Large Restoration of Lost Tissue is Required; 3. When the Tissue underlying the Saddle is subject to Change; 4. Where there is Liability of Fracture; 5. Extension Bridges; 6. Unparallel Abutment.

Cases Where Removable Work is not Indicated: 1. Where Abutments are at all loose; 2. In Close Bites where the Bulk would be to a Disadvantage.

THE SURGICAL TREATMENT OF CLOSE BITES.

The surgical treatment of close bites is an operation that should be used a great deal more than it is. When a case presents itself where you should have a good deal more room to enable you to get enough material for proper strength and esthetics, why should we hesitate to remove enough of the ridge and tissue to ensure a good piece of work? The tissue to be removed has no function, and consequently the patient suffers no loss by such procedure.

It is generally advisable to give an anesthetic so the operation may be done thoroughly.

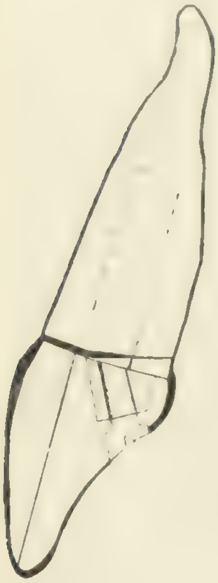

Fig. 11

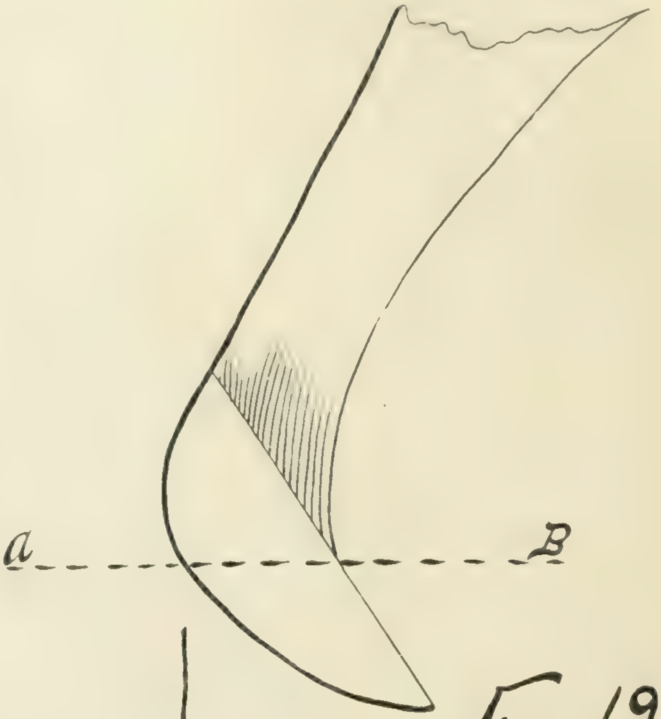

Fig. 12.

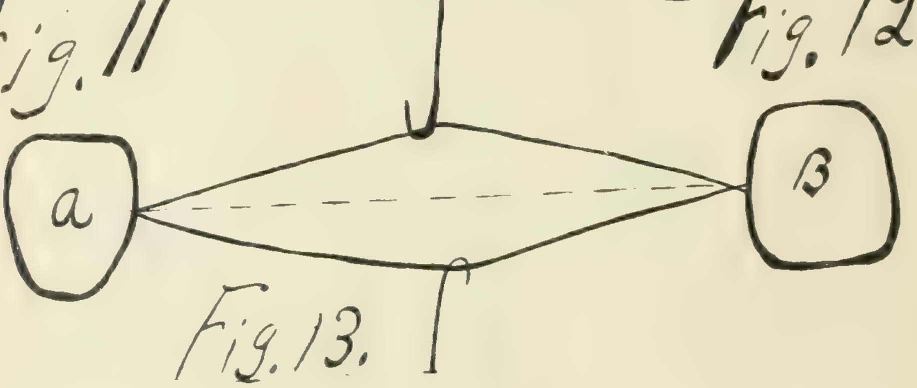

Fig. 13.

The technique is very simple. First, make an incision extending from one abutment to the other, pass a sharp hook through the middle of this flap and dissect back each way—then with a pair of alveolar forceps pinch off the desired amount of bone tissue. Have a good hoe currette ready to or four weeks the case will present an alveolus made to order, and there should be no reason why the operator should complain about not having enough room to make a nice piece of work.

NORMAL RESTORATIONS OF THE OCCLUDING SURFACES OF THE TEETH IN THE CONSTRUCTION OF INLAYS, CROWNS AND BRIDGES

F. C. Husband, D.D.S., L.D.S., Toronto.

Read before Toronto Dental Society, November 19, 1912

Given the abnormal, the true student will seek the normal and endeavor to realize it by restoring the abnormal to the normal. The normal should be the ideal towards which we strive and the more we know of the normal the more intelligently will we strive.

The worker should be surrounded by subjects representing the ideals towards which he is working.

The artist's studio is an inspiration to him as he strives to give expression to his ideas. His studio is hung with copies of the works of great artists. His windows, mayhap, give him the prospect of nature's untrammeled beauty and so his works show that he is at one with nature.

Every student of dental art and science should know in detail what constitutes a perfect denture. Given a perfect denture, remove one or more of the teeth, he should be able to replace by a substitute perfect in form in every external detail.

A great asset for every one of us to have, it seems to me, would be a natural skull with all the teeth in normal occlusion, or failing this, good plaster models of a normal denture. It would be an inspiration to us to strive to attain the perfection found there. It would be a source of reference when in doubt on some point of external anatomy.

If we went no farther than to copy nature's outlines in our restoring lost tooth tissue and said not a single word more, we would get ideal results.

Normal occlusion of the teeth is not a new idea; but it remained for Dr. Edward H. Angle to show in a scientific manner that teeth departed from their normal positions could be brought back and, furthermore, held there by the natural interlocking intended by their designer. This natural locking is very plainly observable in the case of the six-year molars. How effectively they hold the proper relation of the jaws while the temporary teeth are being replaced by incline engaging incline with marked accuracy. These facts should interest us in making restorations.

Normal occlusion stands for, first, normal structure of the teeth collectively and individually; second, normal function of the teeth collectively and individually.

Normal structure of the teeth will imply the perfection of the individual teeth and of each dental arch.

Normal function will imply the normal occlusal relations of the inclined planes of the cusps of the individual teeth.

It is plain, in view of the foregoing, that loss of one tooth or even one cusp of one tooth will, to just that extent, destroy both normal structure and function.

Is it not a sight, we have all seen too often, of a formerly beautiful denture, where the first permanent molars have been lost, and the second molars are tipping forward and upsetting the harmony which formerly existed. Is not the same true in a slightly lesser degree in the case of a proximo occlusal restoration *not* fully restoring the mesio-dental length at the contact point. Perhaps the well defined cusps of the remaining section of this tooth are so engaged with those of the opposing teeth that tipping does not take place and we find food being jammed down on the septum of gum tissue with the concluding chapter of pyorrhea and perhaps loss of the tooth.

Not only is the mesio distal measurement and contact point important, but the proper occlusion of each cusp, the depth of each sulcus, the proper inclination of each incline plane, the size and direction of the minutest ridge, or even the fine markings of the grooves should be known to him who would restore these anatomical forms.

In this short paper I would appeal to you to follow the standard of the normal occlusion as shown by the set of models, such as I suggested previously in the paper. Examine them from to time and not only consider the teeth in one arch in their mesio distal and bucco-lingual relations to those of the opposing arch, but note the position of each cusp of each tooth and its relation to the cusps of the teeth of the opposing arch. When these relations are thoroughly understood their proper reproduction becomes a matter of the greatest importance to the prosthodontist as well as the orthodontist.

Another feature in the anatomy of the teeth that deserves serious consideration is that of the sulci, grooves, fossæ, ridges, and inclines found on the occluding surfaces of the teeth and the reproducing of same in our work.

These features can be best studied from the natural teeth in the skull, when one can be obtained having a normally occluding denture, but in the event of that not being available they can be studied to great advantage from plaster casts made from good impressions.

On the models the relations of these features in the one arch to the same features in the opposing arch can be studied from the buccal, lingual and occlusal aspects.

It is nature's plan to have the cusps of a proper length and the fossæ and sulci of a proper depth and form and the ridges of a definite shape in order to make the masticating apparatus efficient. Let us note that the cusps of the teeth in one jaw never reach to the bottom of the sulci in the opposing jaw.

Old-fashioned millstones were cut with well defined grooves, and so, as the stones wore down, these grooves had to be re-cut, otherwise the grist would be spoiled. Thus when the dentist undertakes to restore any portion of the masticating surface, he must reproduce all these natural forms, as otherwise the efficiency of these teeth to masticate food will be seriously interfered with.

How shall we, then, restore these anatomical features in our inlays, crowns and bridges.

In the first place, do as much of the carving as possible in the wax. By careful investment these features will come out quite clear cut in the casting and the deep grooves may be dressed with a graver while the inlay is retained in engraver's wax and the contours finished in the ordinary way. Care should be taken to insert the sprue wire at a point that will be easily polished—as one of the high points.

Amalgam restorations may be finished to an anatomical outline by means of suitably shaped knife-edged instruments, before the material is "set." It can be quite satisfactorily carved even after it has set hard.

DISCUSSION OF DR. HUSBAND'S PAPER.

CHARLES G. SCOTT, D.D.S., L.D.S., Toronto.

Mr. President and Gentlemen of the Toronto Dental Society: We have listened with interest and profit to Dr. Husband's paper, and he does well to urge us to give particular attention to the cusps we are constructing in crowns and bridges and inlays. In bridges especially how often we have seen the lingual cusps of an upper bridge omitted, with the result that the bite has closed, the lower bicuspids have tipped lingually, the whole lower arch become contracted and the anterior teeth crowded. in crowns and inlays this is also true, but not to the same extent.

The contact point has often been discussed and should not be lost sight of. In gold crowns and inlays I think the best way is to try the finished piece of work in the mouth, by running a ligature past the contact point, and it usually passes easily. Mark the exact place on the work you want the contact point to be, paint whiting on all surfaces except the desired point, then place a very small piece of 18k solder on that point and flow with a blow-pipe. Drop the work while hot into the acid and it will not need repolishing. The result is you have a small, hard, rounded contact at the point where it is most efficient.

The essayist does not take into consideration the age of the patient. Should we make the cusps as high, the grooves as deep, in the case of a man of 50 with a hard bite as for a patient of 10 years of age?

Are teeth with prominent cusps and well defined grooves the best kind of teeth? Do we not often find the reverse? I think, if my memory serves me, the finest sets of teeth I have seen have not been those with deep grooves and prominent cusps. A long cusp is more liable to fracture than a short one. I think that some upper bicuspids have had their lives shortened by the combined causes of pyorrhea and long interlocking cusps.

Let us make a very careful study of the surrounding conditions in the mouth in which we are making the restoration, and not go to the extreme of making long cusps and deep grooves where they are not only not required, but where they will do a positive injury.

The essayist uses the illustration of the millstone needing recutting. What should we do with the patient with a splendid set of teeth who has worn the occluding surfaces almost flat, and the dentine is exposed? He does not need the surfaces recut? Nature intended the teeth to wear down in time. Again I say let us study the restoration in the mouth where it is to be made, and not so much from models where conditions are entirely different.

Let me congratulate the essayist on the manner in which he has brought this important subject to our notice.

EXCISION OF DISEASED ROOTS AND MOLARS

A. W. Ellis, D.D.S., L.D.S., Toronto, Ont.

Read before Toronto Dental Society, November 19, 1912.

Sometimes it is advisable to save part of a molar, rather than lose the whole tooth. This can be accomplished by excising the diseased root. The crown of the tooth will, of course, have to be trimmed accordingly, or re-shaped by means of a crown or inlay. In cases of lower molars the crown can be cut in half, thus making a bicuspid of the remaining part of the tooth, and the excised portion can be replaced by means of a bridge.

The conditions that call for complete excision of a root are:

1st. Where one root has become completely denuded of its pericemental attachment, caused by

(a) Pyorrhea on lingual or one of the buccal roots of an upper molar, or on one of the roots of a lower molar.

(b) Chronic alveolar abscess of one of the above mentioned roots.

(c) Interproximal abscess.

(d) Abscess from adjoining tooth.

2nd. Where there is a chronic alveolar abscess, with a sinus from one root which will not yield to treatment, and it is not wise to amputate the end of such root.

3rd. Where one root has been accidentally drilled through the side and it is impossible to fix it up.

4th. Where one root has already been cut off through extensive caries; sometimes taking place under an ill-fitting crown.

5th. Where from some cause or other we have an abscess located between the roots of a molar, and it is impossible to cure it.

In such cases the technique and treatment will, of course, be according to your judgment as regulated by your experience.

In conclusion I might say that I have several of these cases of excised roots under my observation, and so far they have been very successful and satisfactory.

I would like to congratulate the extraction specialist for educating us not to extract teeth, but to send such cases to him. Thus, you see, rather than do so we save half a tooth, whereas formerly we might have extracted the whole tooth ourselves.

CANDY AND CARIES

W. C. Gowan, D.D.S., Peterboro, Ont.

There is reason to believe that frequent or habitual candy-eating contributes to caries in the teeth of children. Sugar decomposed by ferments yields the nascent acid which is the active agent in caries. Candy eaten between meals supplies the sugar. No other food being eaten with it this candy-sugar is not soon removed from the teeth. Other constituents of candy such as pastry flour, gelatine or chocolate serve as a paste to hold the sugar in contact with the enamel or to fill pits or cavities already established so that it is not readily washed away by saliva.

Sugar as part of the meal is not so dangerous as candy because it is more likely to be removed from the teeth by other food and drink taken at the same time.

Candy-eating tends to become a habit. It vitiates the appetite of a child. Then the child refuses solid wholesome foods, preferring soft or sweet stuff. Sensitiveness of the teeth ensues and then mastication of hard or solid foods is avoided. In this event natural protective cleaning of teeth and gums by mastication is impaired or ceases. Thus habitual candy-eating provides the materials essential to carious attack while indirectly it diminishes or suspends the natural means of protection and defence against caries.

True, some children eat candy without vitiating the appetite or contracting a habit. But children differ one from another in health, vigor, temper, taste, feeding habits and environment, so that the results of indulgence in candy-eating are not alike for all. Then it is also true that some children who seldom eat candy suffer more or less from caries. But this does not prove that frequent candy eating is incapable of aggravating or initiating carious attack.

So far as I have personally observed in practice, the relation of severe carious attack to candy eating is too close to be regarded as mere coincidence. In every case of early, widespread or unusually persistent caries that I have enquired into during the past year, I found the patient to be a candy eater. By this term I mean one who eats candy as often as it can be had—daily or several times daily as opportunity may allow. These patients ranged in age from six years upward. Some of them denied the habit, so that other witnesses had to be examined for the facts. Grocers children, candy store clerks, children who get candy a cents-worth at a time, and older girls and boys who frequently eat candy, are in my experience the greatest sufferers from caries.

Caries of the lower incisors or of the distal surfaces of the first molars, before the second molars appear, gum line cavities, white lines in the enamel along the gum margin or pulp exposure in the first molars within the year of their eruption, I have found only in children who frequently eat candy. The most widespread and persistently recurrent cases of caries I have dealt with were in the mouths of habitual candy-eaters—one a clerk in her mother's candy-store, the other described by her sister as an "awful" candy eater.

Clinical data of the relation between frequent candy eating and severe carious attack may be collected without much difficulty and ought to be reported by dentists of different cities and towns. If the relation alleged is found by other observers and is consistent with scientific conclusions we should be justified in declaring candy dangerous and unfit for children to eat. Meantime it could be no great error to include warning against candy in the instructions for proper care of children's teeth.

Proceedings of Dental Societies

REPORTS OF COMMITTEES OF THE CANADIAN AND ONTARIO DENTAL ASSOCIATIONS

REPORT OF THE BRODIE MEMORIAL FUND.

DR. CORRIGAN: I was appointed convenor of the "Brodie" Committee last year and that committee was given power to do what was thought right in the way of making a memorial to the late Dr. Brodie. Now, there may be some who do not know what worth there was connected with the late Dr. Brodie, and I will just give in a few sentences how it was that this committee was formed. In the first place, let me state that Dr. Brodie, a practising dentist in Toronto for upwards of forty years, was regarded as one of the leading entomologists in America. For years, at the sacrifice of his own professional time, he carried on this work, and before his death some five or six years, the Ontario Government recognized his great ability and for fear that a great many of the specimens he had collected would go outside of our own country the Provincial University purchased the collection and made Dr. Brodie provincial entomologist at the University. The University at Washington obtained upwards of 90,000 of Dr. Brodie's specimens. Now, you can readily see he was a man of great worth, and he sacrificed a great deal to do this work, a work that has added no doubt millions of dollars, or will add it in the future, to our country. His great specialty was the study of moths, and what he has done in that line alone will save the farmers of Canada many millions of dollars in the future. Now, it was felt that a man who had done so much should be recognized, and for that reason the Brodie Memorial Committee was instructed to do what they though right in the matter. We met last fall in Toronto, and the Committee decided we should get a portrait of the late Dr. Brodie and hang it in the college. This has been done at an expense of something like $187. We made an appeal to the dentists of Canada to give us their support in order to pay for this memorial. Up to the present time we have only received something like $60. Now, this Committee was empowered to go on and secure that memorial and to pay for it, and we believe that the reason we have not got more funds is simply because the men did not take time to send in the donations. We will take no more than $2 from any one man, but we will take as much less as you feel you can give. Dr. Eaton, the treasurer, is here to-night, and I would like to see this amount raised. It will be an inspiration to the young students in the future days to see the portrait hanging in the college.

On motion of Dr. Seccombe, seconded by Dr. Bennett, the Brodie Memorial Committee was continued in office.

REPORT OF THE MILLER MEMORIAL FUND.

Mr President and Members of the Canadian Dental Association:

The I. M. M. F., as you know, had its origin at a meeting of the International Dental Federation in Paris. It was established with two objects in view. First to perpetuate the memory of the man who had done so much for the good of humanity; second, to stimulate others to continue his work.

The Fund is invested to produce a sum, to be given every two years, in the form of a prize to the dentist who is adjudged to have done the most to advance the science of dentistry.

Two years ago the C. D. A. appointed a General Committee and a Representative in each province in the Dominion, to place the matter before the dentists of Canada in order that each man might have the opportunity of aiding this great work.

The General Committtee has received in most cases the enthusiastic support of the Provincial and District representatives, and we desire here to thank the men for their courteous co-operation.

There are in Canada about 1,800 practicing dentists. Of this number 182 have promised, and have given in the following manner:

	No. of Dentists.	Promised.	Subscribed.
Prince Edward Island........	1	5.00	5.00
Alberta	1	$25.00	
British Columbia	2	27.50	$2.50
Manitoba	27	244.00	244.00
Nova Scotia	4	20.00	20.00
New Brunswich	7	23.00	23.00
Ontario	102	618.00	539.00
Quebec	34	129.00	124.00
Saskatchewan	4	45.00	10.00
Total	182	1136.50	967.50

Average subscription of those who have given,—about $5.00

Contribution of the Royal College of Dental Surgeons . .	$100.00
Contribution of the Quebec Dental Board..........	100.00
Individual Subscriptions	967.50
Total	$1167.50

FINANCIAL STATEMENT.

Receipts.

Subscriptions paid	$1167.50
Bank Interest	14.18
	$1181.68

Disbursements.

Bank Exchange			$ 1.95
Committee Expenses			
Toronto		$21.60	
St. Thomas		4.60	
Nova Scotia	$20.00	1.00	
Ontario District, No. 1:			
A. A. Smith, Chairman	$34.00	3.00	
			30.20
Secretary's Expenses			44.65
Printing			45.38
Postage on Circulars			15.69
Clerk addressing Circulars			6.00
Bank Balance			1037.81
			$1181.68

A number of the Provincial Representatives did not report any expenses.

This report is respectifully submitted by your General Committee.

CHAS. G. SCOTT,
Secretary.

THE REPORT OF THE EDUCATIONAL COMMITTEE OF THE ONTARIO DENTAL SOCIETY.

Executive Committee:—Dr. Wallace Seccombe, Toronto, Chairman; Dr. Mark G. McElhinney, Ottawa; Dr. A. J. McDonagh, Toronto; Dr. F. E. Bennett, St. Thomas; Dr. R. G. McLaughlin, Toronto; Dr. D. M. Foster, Guelph; Dr. W. B. Cavanagh, Cornwall; Dr. W. J. Bruce, Kincardine; Dr. Oliver Martin, Ottawa; Dr. A. E. Ahrens, Stratford; Dr. R. J. Reade, Toronto, Secretary-Treasurer.

Cornwall Educational Committee:—Dr. W. B. Cavanagh, Chairman; Dr. A. A. Smith, Secretary.

Elgin Educational Committee:—Dr. F. E. Bennett, St. Thomas, Chairman; Dr. C. C. Lumley, Dr. T. C. Trigger, Dr. H. H. Way, St. Thomas, Secretary.

Guelph Educational Committee:—Dr. D. M. Foster, Chairman; Dr. George Parker, Dr. F. T. Coghlan, Secretary.

Ottawa Educational Committee:—Dr. Oliver Martin, Ottawa, chairman; Dr. L. E. Stanley, Dr. C. H. Juvet, Dr. W. C. McCartney, Dr. M. F. Cross, Dr. W. R. Green, Dr. J. J. Lancey, Dr. M. G. McElhinney, Ottawa, Secretary.

Stratford Educational Committee:—Dr. A. E. Ahrens, Stratford, Chairman; Dr. L. E. Stanley, Dr. C. H. Juvet, Dr. W. C. McCartney, Toronto Educational Committee:—Dr. R. G. McLaughlin, Chairman, Dr. C. A. Kennedy, Dr. F. J. Conboy, Dr. W. H. Doherty, Dr. A. J. McDonagh, Dr. Wallace Seccombe, Dr. A. D. A. Mason, Dr. Horace Eaton, Dr. R. J. Reade, Dr. A. E. Webster, Dr. J. A. Bothwell, Secretary.

REPORT OF THE ONTARIO DENTAL EDUCATIONAL COMMITTEE.

To the Members of the Ontario Dental Society:

In June, 1911, the Ontario Dental Society held its Annual Meeting in Toronto, and decided to continue its Educational Committee. The following were elected members of the Executive: W. E. Willmott, Toronto; W. H. Doherty, Toronto; W. Seccombe, Toronto; A. J. McDonagh, Toronto, and R. J. Reade, Toronto. The general committee consists of the chairmen of the different educational committees in Ontario. It was considered advisable that the Executive should be composed of those in such proximity that frequent meetings could be called to transact business.

The committee beg leave to present the following report of their work during the past year.

Dr. Wallace Seccombe was re-elected Chairman, and Dr. R. J. Reade, Secretary-Treasurer. Nine meetings were held during the year.

Following the course adopted last year, the educational campaign was carried on by the appointment of educational committees in the Province of Ontario. The sub-committees are being assisted by the Executive in every way possible; by suggestions, by the loan of lantern slides, charts and other illustrations suitable for lecturers. The appointment of the Chairmen of these committees on the executive brings the various committees into close relationship with the work of the Ontario Dental Society.

The following are the subcommittees that have taken an active part in the educational campaign during the year just closing: Toronto, Ottawa, Guelph, Stratford, Cornwall, Morrisburg, Elgin and Kincardine.

The results obtained by the sub-committees were secured by strenuous work, and the report of the committees will be found embodied in the present report.

The medical department of the Toronto Public Schools now includes a Dental Inspector, Dr. W. H. Doherty. The endeavor of Dr. Doherty is to prevent decay of the teeth, rather than to inspect teeth when decayed. For this purpose it was necessary to instruct the children regarding dental disease and the care of the teeth. To enable the children to more readily understand the teaching, a set of charts, known as the Dental Exhibit of the Toronto Public Schools, was published. These charts are here for your inspection.

Your committee ordered fifty sets of the exhibit. These are sent free to each sub-educational committee of the Ontario Dental Society in the

Province. For private use they can be secured for $3.50 per set.

As the cards have proved very useful as aids to lecturers, we have received inquiries for them from a number of places outside our province, for example from Montreal, both from the hospital and the Public School Board; from Harrisburg, Virginia; Little Rock, Arkansas; Rochester, N. Y.; Joilet, Ill.; Boston, Mass.; Wilkesbarre, Pa.

As a result of this campaign the outstanding feature is the establishment in Toronto of a free dental clinic for the poor. This is no ephemeral accomplishment, for the maintenance is provided for by the city. The best results will be obtained because the patients do not depend upon the voluntary services of the profession, but dentists are appointed to do the work and are paid by the city. Toronto is, we believe, the first city on the continent of America to have a free dental clinic carried on by the Government. In this achievement Ontario shares the honor with her capital city, and the Dominion of Canada with her fairest Province.

Your committe has placed with the Ontario Department of Agriculture for publication, a pamphlet entitled "Prevention of Decay of the Teeth." This pamphlet was prepared by Dr. A. A. Stewart, at the request of your committee. We are asking for fifty thousand copies. These will be sent to the dentists of the Province, the Women's Institutes, the teachers and others. There will be a wide distribution, and much good is expected to result. This publication is in print, and will be issued now in a few days.

The subject of Rural School Inspection has had the attention of your committee. A special committee was appointed to interview the Government.

The same committee was asked to interview Mr. Hanna with reference to the care of the teeth of the inmates of prisons, asylums and other similar institutions.

The following is the report of the committee.

A special committe of the Ontario Educational Committee waited on the Hon. Dr. Pyne, Minister of Education, and urged that his department undertake to issue some definite literature giving instructions to the public school teachers of the Province on how to teach the children under their care "Something about the importance and proper care of the teeth."

The Minister was quite sympathetic and agreed if the Educational Committee would prepare a suitable pamphlet on the subject that his department would undertake to place it in the hands of every public school teacher in the Province. The Committee now has this pamphlet under consideration.

Also the same committe interviewed the Hon. Mr. Hanna in reference to the matter of having dentists appointed under regular salary whose duty should be to care for the teeth of the inmates of the Provincial Asylum and other similar institutions. In this also the committee can report good progress, as Mr. Hanna has given his deputy instructions to go carefully into the matter with the understanding that if the plan were found to be workable the appointment would be made.

Also the committee has been in consultation with Dr. McCullough, the Chief Health Officer of Ontario, in reference to the giving of public lectures on dental hygiene in different parts of the Province. This matter has not yet been concluded.

LECTURES TO MEDICAL STUDENTS.

Your committee was in communication with the Secretary of the Faculty of Medicine of the University of Toronto, regarding a course of medicine to medical students on "The Relation of Dentistry to Medicine." As this was a local mattter, the executive referred the correspondence to the Toronto Educational Committee.

WALLACE SECCOMBE, R. J. READE,
Chairman. *Secretary.*

TORONTO EDUCATIONAL COMMITTEE.

Members: Drs. A. D. A. Mason, H. E. Eaton, C. A. Kennedy, Wallace Seccombe, R. G. McLaughlin, R. J. Reade, W. H. Doherty, A. E. Webster, F. J. Conboy, T. N. McGill and J. A. Bothwell.

At the inaugural meeting R. G. McLaughlin was elceted Chairman, A. E. Webster, Treasurer; J. A. Bothwell, Secretary.

The committee decided on three special lines of work, each to be under the control of a sub-committee.

The first committee was the Hospital Committee, Dr. A. D. A. Mason, Chairman. It had two distinct objects in view—one to arrange for a course of lectures on dental hygiene to the nurses in training at the different hospitals and kindred institutions, and the other to arrange for the establishment of dental clinics in the larger hospitals in the city.

The results have been most gratifying. Lectures have been arranged for, and given in all the large hospitals. The graduating nurses are now required to pass written examinations on these lectures.

Two dental clinics have been established, one in the General Hospital, and the other in the Hospital for Sick Children. The General Hospital clinic under Dr. A. D. A. Mason, though still in the formative stage, gives promise of a good future. The clinic in the Hospital for Sick Children ranks amongst the best equipped and most up-to-date dental clinic in any hospital on the continent, and is under the charge of Dr. J. A. Bothwell.

Secondly, the City School Committee under the chairmanship of Dr. H. E. Eaton, had under its care all the schools and colleges in the city. Arrangements were made for lectures on dental hygiene in some of the private schools, as Westminster and Moulton Ladies' College, and in the Presbyterian and Methodist Deaconess Homes. The work of introducing dental inspection in the Separate Schools was taken up with the Separate School Board, and the committee met with much encouragement.

Thirdly, the committee known as the Free Dental Clinic Committee, with Dr. McLaughlin as Chairman, was given definite instructions to make every effort towards the establishing of a Free Dental Clinic for the poor children of Toronto.

The matter was taken up persistently with the Medical Health Department, Board of Control and the City Council. Finally the City Council, early in May, made an appropriation of $4,000 for the carrying on of this clinic for the remaining months of the present year.

At the time of writing this report this committee is busily engaged in interesting a number of wealthy philanthropists in the matter of subscribing sufficient money to properly equip the clinic. In the near future we hope to have a well equipped dental clinic of at least three chairs for the poor children of Toronto.

At the April meeting of the whole committee, Dr. A. J. McDonagh became a new member by appointment, owing to the resignation of Dr. T. W. McGill.

R. G. McLaughlin, *Chairman.*
J. A. Bothwell, *Secretary.*

THE GUELPH EDUCATIONAL COMMITTEE.

Dr. D. M. Foster, Chairman, and Dr. F. T. Coghlan, Secretary. Lectures are being given to nurses in training at St. Jospeh's Hospital. A request has been received from the Superintendent of the General Hospital for lectures in dentistry to their class of nurses.

The committee has also received a request from the Board of Education to send a representative to their next meeting to talk over the subject of school dental inspection. The Secretary writes: "This is all the progress we can report now, but hope we may be able to give more practical results in our next report. It is encouraging to see the rapidity with which the work is spreading."

THE STRATFORD EDUCATIONAL SOCIETY.

The following are the officers of the Stratford Society: President, Dr. A. E. Ahrens; Secretary, Dr. J. A. Bothwell; Dr. S. B. Gray.

The work of educating the public in hygiene of the mouth is being carried on again this year. At a meeting of our society in the early part of the season the following were appointed: Dr. E. H. Eidt, to address the Perth Public School teachers in convention; Dr. J. A. Beattie, to address the Normal teachers in training; Dr. S. B. Gray, to address the nurses in training at the Stratford General Hospital.

The two former have already completed their work, but Dr. Gray has not yet met the nurses in training.

I might also add that inspection in the public schools is still being continued. Miss Munro, the nurse engaged in the work last year, having resigned, Miss Loney has been appointed.

REPORT OF THE OTTAWA DENTAL EDUCATIONAL COMMITTEE.

The first meeting was held January, 1912. Present were Drs. Oliver Martin, W. R. Greene, C. H. Juvet, L. E. Stanley, J. J. Leacy, W. C. Macartney, W. A. Leggo, M. G. McElhinney. Dr. Martin was elected Chairman, and Dr. McElhinney, Secretary. Eight meetings were held during the year. The committee reports much progress. They have succeeded in securing the co-operation of the press, and have prepared thirty-four articles for publication. A free dental dispensary has been established for the deserving poor of the city of Ottawa. Forty dentists have pledged themselves to attend from nine to twelve every Monday morning, or pay five dollars for a substitute. Progress is being made now, and there is no doubt that the results of the next twelve months will be greater than the previous twelve months.

THE CORNWALL EDUCATIONAL COMMITTEE.

During the past year the efforts of the local committee at Cornwall have been directed towards paving the way to the general recognition of the importance of conservation of the teeth.

Literature has been distributed to all the schools, convents and hospitals, and reminder cards, "Suggesstions for the care of the teeth," to the school children.

At the invitation of the Teachers' Convention of the United Counties of Dundas, Stormont and Glengarry, Drs. Cavanagh and Smith read papers on "The Importance of the Care of the Teetth" and "Dental Education of the Public," respectively, before a large assembly of the teachers in October last.

THE ELGIN DENTAL SOCIETY.

The Elgin Dental Society has been active. Several illustrated lectures have been given during the year. Some of them given in churches, and before the Health Club of the Y. M. C. A. The public seem to be very much interested in the subject, and from conversation with several who have heard the lectures, there is no doubt that the people are awakening to the importance of the teeth.

REPORT FROM KINCARDINE.

The work of the Educational Committee of the O. D. S. has been progressing nicely in this district. Literature has been distributed to the various schools throughout the town and country. Meetings of the Women's Institute have been addressed by members of the profession.

Nurses in training at the General Hospital have been present during the administration of anesthetics, and have assisted during operations in the dental office.

A progressive educational campaign is being carried on with good results.

FINANCIAL STATEMENT.

Receipts.

Balance Last Statement	$108.49
Cheque from the Ontario Dental Society	50.00
Loan from Dr. R. J. Reade	15.00
Sale of Dental Exhibit	21.50
Bank Interest	4.46
	$199.45

Disbursements

Stationery and Postage	$ 2.91
W. R. Maxwell & Co., Printing	18.50
50 Sets of Dental Exhibit	161.25
Typewriting Pamphlets	4.00
Dr. C. V. Wallace, Port Credit Expenses	5.00
Express Charges	3.25
Bank Exchange	.60
Balance on Hand	3.94
	$199.45

Assets of Committee.

Accounts Owing	$ 7.50
Exhibits not disposed of at $3.50 per set	122.50
	$130.00

This, Mr. President, is the report of the Educational Committee that you appointed last year. The Executive of that Committtee has endeavored to do the work of the Ontario Dental Society rather than to do the work of the Sub-Committees of special localities as in Toronto, Ottawa, and other places. It has been the desire of your Committee to help local committees, but not to do their work, any more than to help them as far as in us lay. The work of your Executive Committee has been more along provincial lines. I have much pleasure in moving the adoption of the report.

DR. SECCOMBE: I second the adoption of the report. I just wish to say a word, and that is with reference to the work the Committee has under consideration in regard to publishing in rural newspapers short articles on oral hygiene and the care of the teeth. As you are aware many of these rural papers are published in one central publishing house. Dr. Walter Willmott was acting as a sub-committee and he tells me that he has arranged with the central publishing house if he gives them the material they will insert it. In that way we will be sending out the information on oral hygiene through the rural districts through this agency.

The president put the motion, which on a vote being taken, was declared carried.

DR. BENNETT: Last year the Executive of the Ontario Dental Society granted $50 towards the work. I would recommend that a grant of $75 be given this year on account of the increased work of that Committee.

DR. SECCOMBE: I think the committee will need more than $75. judging from the work of last year. I do not anticipate being on the Committee, but I think that this Committee ought to be well supplied, and I think at least a grant of $100 should be given.

DR. BENNETT: I understand there was not sufficient money on hand and I made it $75, but I am quite agreeable to making it $100.

DR. SECCOMBE: Then I second the motion.

The President put the motion, which on a vote being taken, was declared carried.

DR. MALLORY: I think there should be a statement of the liabilities as well as assets on the financial statement. There must be a liability for a loan from Dr. Reade of $15, and that should be taken account of in giving the grant of $100.

DR. PRICE: May I enquire whether this society means the Dominion or the Ontario Society?

DR. HOGGAN: The Ontario Society.

The chairman called for the report of the Canadian Dental Association Educational Committee.

DR. THORNTON: This is a resume rather of the work attempted and to some extent done by the educational committee of the Canadian Dental Association, namely, the Canadian Oral Prophylactic Association.

(The report of the Educational Committee of the Canadian Dental Association will appear in a later issue.)

REPORT OF THE ARMY AND NAVY COMMITTEE

DR. G. K. THOMPSON: The Committee appointed by the Canadian Dental Association two years ago has not had an opportunity of meeting since that time, but I, as a member of the dental profession interested in the status of the profession in this respect have been doing a little work with regard to improving the status of the dentists in the Canadian Militia. I think you all know probably that the idea of the appointment of dental surgeons in the Canadian militia originated with the Canadian Dental Association. We have not a dental corps such as we think we should have. Eight years ago there were eighteen dentists throughout the Dominion appointed to act as dental surgeons, and two years ago the number was increased to twenty-six. A very good dental outfit has been provided by the Department. Now, the dental surgeon has no rank such as is the case with the medical men. After three years the medical man is called captain, but the dental surgeon after three years' service receives the title of honorary captain. I think the dental surgeon's status should be improved and he should be given a rank the same as the other bodies. There has been a great deal of dissatisfaction in regard to this throughout the profession, and during the last two years I have had some correspondence with some of the officials in the department, and recommendations have been made. I received a reply to the effect that the department was very sorry that any dental surgeon should feel that he was slighted in any way. Colonel Jones tells me he is at the present time in Washington and is looking into the workings of the American Department, so that something may be done. When the honorable Minister of Militia, Colonel Hughes, was in Halifax a short time ago, I had an interview with him, and to my surprise he said he was very much interested in it, and when I told him that it was not only the 26 dental surgeons in the Canadian Army who were dissatisfied with the conditions, but the thousands of dentists throughout the profession generally, he seemed to be the more impressed. He urged me to outline a scheme, or to have a scheme outlined by this association and sent to him direct and not through the usual channel, and he said the matter would be considered by the Department. I might say in the United States they have been working for years on this question, and it was only recently they obtained legislation giving them, not just exactly what we are asking for, but almost the same. I know of three cases in our Canadian militia where resignations have taken place for this reason, and more resignations will take place if this matter is not remedied. I do not think this resignation business is the proper way to go about it. I think we should reason with the government and show them how the profession feels, and I think a resolution should be passed by this body. I have a resolution here which I will read, and I move its adoption:

"Whereas for several years this association has been endeavoring to secure substantive rank for the dental surgeon in the Canadian militia, and no action has been taken by the Militia Department towards granting the request; and whereas the professional relationship of the dental surgeon to the men of the militia demands that he be given that of the medical officers; therefore be it resolved that this association urge upon the Department the importance of appointing the dental surgeon in the same manner and with the same rank as officers of other branches of the service."

DR. MAGEE: I have very much pleasure in seconding that.

The President put the motion, which on a vote being taken was declared carried.

DR. THOMPSON: I would also move that a committee be appointed to outline a scheme for the organization of a dental corps in the Canadian Militia, such scheme to be submitted to the Minister of Militia.

DR. MURRAY: I second the motion. I think Dr. Thompson should be that committee.

The President put the motion, which on a vote being taken was declared carried.

Upon motion of Dr. Murray the Army and Navy Committee as now constituted was re-appointed, and Dr. G. K. Thompson named to draft and present resolutions to the authorities.

REPORT OF THE NOMINATING COMMITTEE OF THE CANADIAN DENTAL ASSOCIATION

The Nominating Committee of the Canadian Dental Association propose the following officers for the ensuing term:

Hon. President—W. D. Cowan, Regina; President—G. F. Bush, Winnipeg; First Vice President—Dr. Lauthier, Quebec; Second Vice President—F. W. Barbour, Frederickton, N.B.; Secretary-Treasurer—H. M. Garvin, Winnipeg.

Committee:

J. W. Berwick, Montreal, Que.; G. K. Thompson, Halifax, Nova Scotia; J. B. Bagnall, Charlottetown, P.E.I.; J. A. C. Hoggan, Hamilton, Ont.; G. M. Minogue, Vancouver, B.C.; E. M. Doyle, Calgary, Alta.; G. A. McDonald, Yorkton, Sask.

The President called for the report of the Nominating Committee.

DR. THORNTON: There is just a little difficulty always in the work of the nominating committee because there are some men from the outlying provinces who come here regularly and these men are on the nominating committee, and it is sometimes necessary to appoint these very men, and they object to being appointed because they are on the nomniating committee. However, their objections were overruled.

DR. WEBSTER: I might make a suggestion. In whatever province there is an officer appointed in that province that officer acts as representative of the province, so that the provincial representatives are only nominated for the provinces which have no officers. Therefore in the province of Quebec, for instance, one name should be withdrawn. There cannot be a representative from the same province in which there is an officer, according to the constitution.

DR. THORNTON: We have never seen the constitution. At the present time the Province of Quebec is not affiliated with the other provinces in the Dominion Dental Council, and we desire that that should be brought about if possible. Dr. Lauthier is a representative man. He lives in the city of Quebec and is close to the legislature, and he is a man who could work most effectively. Then there are two races there, and it would be desirable for both classes to work together, and Dr. Berwick being a representative of the English speaking dentists there, it was thought that the two working together could perhaps bring that desired condition about.

DR. WEBSTER: One of the arguments at the time was that there should be just one representative from each province on that council, not representation by population.

THE PRESIDENT: It goes to show the necessity for getting our constitution into shape.

DR. HOGGAN: Our Secretary left for British Columbia, and he left a resolution with me which was adopted by the executive this morning:

RESOLUTION OF THE ELGIN DENTAL SOCIETY

"We, the members of the Elgin Dental Association, believe it to be in the interests of higher education and of more efficient training to those entering upon the study of the dental profession, that the Royal College of Dental Surgeons of Ontario should become a faculty of the Toronto University, and ask that this subject be opened for discussion at the meeting of the Ontario Dental Society to be held at Burlington on June 4th, 5th and 6th, 1912."

DR. TAYLOR: As a member of the Elgin Dental Association and perhaps one who promoted that movement, I would like to speak to that resolution. There has been an idea in the heads of many men that our educational institution should become as the medical educational institutions, a direct faculty of Toronto University. Now, the hour is late, and in order to facilitate the business in connection therewith, I shall just mention two or three points that prompted the bringing in of that resolution, and then, if I have a seconder, we can discuss the matter and it will only take a few moments. Perhaps the first motive that prompted that was the greater facilities that could be offered by the University of Toronto; the more efficient training for students entering the dental profession. We have at present about 900 licentiates in the province, and I think there are only about thirty five or forty per cent. of those who are interested enough in the running of our institution to exercise our franchises. Now, gentlemen, how can we hope to give as efficient training to our students of dentistry as Toronto University, whose business it is to handle such institutions? We must waken up to the fact that other provinces are organizing their dental institutions in connection with their universities, and I believe that this is the proper place to bring it up. I remember the time when I came into the R.C.D.S. as a student, and I soon found out that we were not in close affiliation with the central organization, the Toronto University itself, as some of the other faculties, and for that cause and no other I felt ostracised to some extent. Let us place ourselves so that we can give these men as efficient training in their work as possible, and in that way we will raise the status of our profession. Now, I do not mean we should enter the University to increase our efficiency, but there is nothing in the world that will lift our status more quickly than efficiency, and that is the only thing that will raise it. I honestly believe we would be stronger, and our graduates would be more efficient and we would be more able to give good service if we were a direct faculty of Toronto University. I bring forth, therefore, this motion: "In the opinion of the members of the Ontario Dental Association we respectfully suggest that the time being opportune, the Board of Directors re-open negotiations with the authorities of the Toronto University to establish therein a faculty of dentistry."

DR. DAY: I think that is too big a question to discuss at this late hour. It should have plenty of consideration.

DR. TAYLOR: We are just asking the Board to re-open negotiations. We are not deciding to do anything.

DR. ARNOLD: I second the motion.

DR. BRUCE: As a member of the Board, I may say the matter was brought up, and while it was not decided to open negotiations with the University of Toronto, the matter was discussed, and if it is the opinion of this society that the present Board of Directors should approach the University in this matter, I, as a member of the Board, see no objection. We cannot intelligently discuss the question at the present time until we know what the University will do, and what the University will grant us. However, we can ask the University what they will do.

DR. READE: It is unfair to bring that question on now. There are lots of things to be discussed in connection with that matter.

The Chairman put the motion, which on a vote being taken was declared carried.

REPORT OF THE NOMINATING COMMITTEE OF THE ONTARIO DENTAL SOCIETY.

Your committee recommend the following officers and committees for the ensuing year:

Hon. President—Dr. W. R. Green, Ottawa.

President—Dr. J. A. C. Hoggan, Hamilton.

Vice President—Dr. W. C. Davy, Morrisburg.

Secretary—Dr. W. A. Black, Toronto.

Treasurer—Dr. F. D. Price, Toronto.

Supervisor of Clinics—Dr. J. A. Bothwell, Toronto.

District Representatives:

No. 1. Dr. L. E. Stanley, Ottawa; No. 2. Dr. G. M. Trewin, Bowmanville; No. 3. Dr. A. Day, Toronto; No. 4. Dr. R. H. Cowen, Hamilton; No. 5. Dr. F. E. Bennett, St. Thomas; No. 6. Dr. B. E. Brownlee; Mount Forest; No. 7. Dr. A. E. Santo, London.

Programme Committee:

Dr. A. W. Ellis, Dr. J. E. Rhind, Dr. F. C. Husband, (Convenor); Dr. R. G. McLaughlin, Dr. W. Willmott.

Educational Committee:

Dr. W. Seccombe, (Convenor); Dr. R. J. Reade, Dr. W. H. Doherty, Dr. A. J. McDonagh, Dr. W. C. Trotter.

Auditors for Ontario Dental Society: Dr. E. Kelley, Dr. F. P. Moore, Hamilton.

At Dr. McLaughlin's request, Dr. Husband's name was put on the programme committee as convenor instead of his own.

ANNUAL MEETING OF THE CANADIAN ORAL PROPHYLACTIC ASSOCIATION

That the Canadian Oral Prophylactic Association Limited in 1912 had quite the most successful year in its history is indicated by the annual statements submitted to the shareholders at their large and enthusiastic annual meeting held in Toronto, Monday, January 13th, 1913.

The financial statement showed receipts for the year of $2,330.98, with an expenditure for Charity and Educational purposes of $1,034.50, and Capital account $399.50 and Operating Expenses $447.16, leaving a balance for 1913, of $449.22. The Association Assets totalled $1,335.90, with Liabilities to Capital Stock of $145.00 leaving a surplus of $1,190.90.

One gratifying feature of the report was the increase in the sale of Hutax preparations in 1912 over 1911. In 1912 there were 12,240 more Tooth Brushes, and 20,160 more Powder and Paste sold than in 1911 or a total gain in revenue from this source of $611.64—an increase of almost 60 per cent, over 1911.

The President's Report was presented by Dr. A. J. McDonagh, the President.

PRESIDENT'S ADDRESS.

Gentlemen:—This being our annual meeting, a report or rather as it is called, an address by the President is now in order.

We are glad to have it to say that we have had a prosperous year from many standpoints, there have been some occurrences over which we had no control, which have militated against our success to a small extent, in as much as to cause us to spend some money that under other circumstances we would not have had to, as you have seen by the Treasurer's report. However, in this address we will make mention of the various facts and ask for a discussion of them to-night.

In a previous addresss, mention was made of the fact that our Association defrayed the expenses of Dr. Dowd, who came to deliver a lecture to the teachers and trustees of the Public Schools, and were glad to report that the enterprise resulted in success. This year we are glad to be able to report that the expenses of a lecture delivered by Dr. C. N. Johnson, to the teachers and trustees of the Separate Schools and also to the invited public were met by our Association.

During the year there have been held one special meeting of the Association and 17 meetings of the Executive. The special meeting directed the Executive to pass a by-law making the by-laws of the Association conform with the application for charter, in the disposition of our funds. This by-law you will be asked to confirm this evening.

At the last bi-annual meeting of the Canadian Dental Association our Association was again appointed the Educational Committee of the Canadian Dental Association.

Your Executive thought it wise that The Canadian Public Health Association should be encouraged, and contributed to that Association a small amount as shown in the financial report, as a result of which we were given the privilege of a dozen members, therefore we had enrolled as members, the officers of the Society and the officers of the Educational Committee for the year 1912, thus permitting a Dental Section to be formed. Dr. Thornton and Dr. Doherty each presented a paper before different sections of the Association. Dr. Webster was chairman of the section.

We had not intended to spend much money in bringing the work of the Association before the profession this year, believing that the profession throughout the Dominion were familiar with the work and the aims of the Association, and also that every dentist who had the good of his chosen profession sufficiently at heart would further the work in every way he could. However, we were forced in self defence during the year to go to the expense of issuing pamphlets to all the dentists of Canada, explaining why we existed and what our objects were.

We felt grieved that we had to publish in an apparently boastful manner, the names of those who were responsible for the formula of Hutax, and I want to assure you, Gentlemen, that it was not in any spirit of pride (though entirely justifiable) or boastfulness that we published the names of those eminent gentlemen, but simply because we felt that we were forced to do so.

We put a new brush on the market this year and in order to familiarize the dentists with it, we sent a brush and circular to each dentist in Ontario and to many outside the Province.

During the joint meeting of the Canadian Dental Association and the Ontario Society, we engaged a space in the hotel at which the meeting was held, and held an exhibit there, showing the charts we have to give away, and the ones we have to lend, the different Hutax dentifrices and tooth brushes. We also distributed copies of Dr. Johnson's lecture and pamphlets explaining the work and aims of the Association.

This entailed a great deal of work, most of which fell on our faithful and painstaking Secretary.

This year we felt it necessary for us to have the designs of the Hutax Brush copyrighted, and if possible, patented in Canada, and have thought it wise to do the same in England and the United States. We have had delivered to us the copyright for Canada and expect to get the same soon from the other countries.

Our contract with Mr. Hargreaves expired last May and we are now dealing directly with Kent & Sons, of England for brushes, although we are only selling to Mr. Hargreaves, who is wholesaling them.

We had the good fortune to be able to help the dentists of Montreal in their exhibit at the Children's Welfare Exhibit, Montreal, and the Secretary will read you a letter from Dr. Dubeau on that subject.

Dr. Webster, during the summer visited the Old Country and having the interests of the C. O. P. A. at heart, agreed to spend part of his holiday looking after our interests over there, a report of which he has consented to give later in the evening.

In the United States there is a society of enterprising dentists who have gotten up an educational moving picture film, it is reported to us as very fine. Your Executive has ordered one and we hope to have it here in a few days. It will cost somewhere in the neighborhood of $200 and we hope to be able to loan it to societies and dentists who will make proper use of it.

During the past year, besides what I have already related, we have loaned charts and slides as usual to all who have asked for them anywhere in the Dominion, and we have sent some to the United States.

You will be glad to know that we were able to assist the school children to obtain tooth brushes in the Public Schools by our contribution of $234, which was the amount necessary to have brushes supplied to them at the price for which they received them.

For the first time in the history of our Association, the medium sized brush has exceeded the sale of the large brush by about a gross. This clearly shows that our teaching is having an effect.

I have to thank the different members of the Executive again for their faithful co-operation in the work of the Association. Each one, Dr. Webster, Dr. Adams, Dr. Trotter and Dr. Broughton have never failed to do all they can in the work and have sacrificed both time and energy to make it a success. With the energy and co-operation of men of their character, with the assistance of our splendid Educational Committee, with our increased revenue and as we are better known, we believe we can see in the future great good to be accomplished, and although we have done such splendid work in the past, it looks at present as though all our past efforts are to be eclipsed.

I have also personally to thank all the members of the Association in Toronto and out of it, and also those who sympathize with us, for the grand support they have given us during the past year.

REPORT OF THE EDUCATIONAL COMMITTEE.

The report of the Educational Committee submitted by Dr. Thornton consisted of replies to a series of questions sent to the provinces, many of these replies containing valuable information and useful suggestions. The letter and questions submitted to the different provinces were as follows:

Dear Doctor:—In view of the approaching annual meeting of the Canadian Oral Prophylactic Association which is the official Educational Committee of the Canadian Dental Association, we wish to obtain some information for our annual report regarding the progress of the work in your Province. To this end will you kindly let me have answers to the enclosed questions at your earliest convenience as the meeting will be on January 13th.

We desire this information that we may know what is being done in the different parts of the Dominion and also that we may make our Association as widely and as effectively useful as possible.

The Association has literature for distribution and charts and lantern slides for lecture use, any of which are at the disposal of any Educational Committee.

Yours very truly,
Secretary, Educational Com. C. O. P. A.

QUESTIONS.

1. What Educational work has been undertaken by your Committee during the past year?
2. What meetings have been held of an Educational character?
3. What lectures have been given and before what bodies?
4. How much has been spent in Educational work?
5. What were the principal sources of revenue?
6. Would additional financial assistance (and to what extent) further the efficiency of your committee?
7. What has been done by any other organization in your Province? (Local or Provincial)
8. What individual Dentists do you know of who are actively interested in the work in their locality?
9. Are there any School Boards in your Province which have a Dental Inspector or a Dental Inspection of the School children?
10. Does the legislature of your Province make any provision for Dental Services in the penal or charitable institutions?

TABULATION OF REPLIES TO QUESTIONS.

Only six provinces sent answers to the above questions and quite a number of the questions have no answers given. Below are the answers:

Question No. 1.—

Two answers "None."

One—"Distribution of Pamphlets, now considering purchase of motion films, arrangements made for care of poor children at Dept. of Dalhousie."

One—"At the Children's Welfare Exhibition held in October, 3,500 children were examined by the Dental Staff, 98 per cent, had decayed teeth, 1,800 tooth brushes were distributed."

Question No. 2.—

Four answers "None."

Question No. 3.—

Four answers "None."

Question No. 4.—

Two answers "None."

One answer "$600.00."

One answer "Very little."

Question No. 5.—

Three answers "None."

One answer "Personal."

Question No. 6.—

One answer "Not at Present."

Another answer "Yes, $200.00."

Question No. 7.—

Three answers "None."

One answer "Not at Present."

Question No. 8.—

"None actively engaged but think there are some who would be willing to become interested."

"Dr. Grace Armstrong has delivered several lectures before Women's Clubs on 'The Care of the Teeth, etc.' "

Question No. 9.—

"No."

"School Children are all inspected by a nurse who sends them to their dentist. They cannot come back to school till they have been to a dentist."

"The City has 18 Medical Inspectors."

"Yes, Halifax."

Question No. 10.—

Four answers "No.'

There was no tabulated report from Ontario, where much work has been done, but a report of which can be seen on page 17 in this issue.

LETTERS SENT WITH ANSWERS TO QUESTIONS.

Dr. W. E. Willmott,
Secretary Educational Committee,
Toronto.

Dear Doctor Willmott,—

Pardon delay in replying to yours of the 13th inst. I now enclose questions answered to the best of my ability.

Re question 6 the sum of $200 would be useful to us in the purchase of motion picture films, etc.

You may remember at the 1910 meeting of the C. D. A. during the discussion of the C. O. P. A. report, among other suggestions for the education of the public were those of motion pictures and insurance health bulletins. The Committee of the N. D. A. as you are aware now have for sale to local societies educational motion picture films which seem to be practical, and if the C. O. P. A. have not the intention of manufacturing a special film, it would seem a good idea for it to purchase one (or more) of the N. D. A. films, and arrange through local societies in Canada for its exhibition in various picture houses.

Re insurance health bulletins, I enclose letter I received from the Provident Life in reply to my suggestions. I do not think insurance companies generally, are doing much in this way, and it might be possible for the C. O. P. A. to arouse them to a realization of its importance.

I have been thinking lately of another idea which may or may not be practical. If practical I think it could be best managed by the C.O.P.A. The idea is to induce manufacturers of dolls to put on the market a line of dolls (moderately priced) with flexible jaws and cheeks so that the teeth might be easily exposed and the child learn in a kindergarten way the importance and care of them. Possibly dolls tooth brushes with directions for the care of the teeth might be placed in box with dolls. We all know how children love to play doctor to their dolls; why not have them play dentist? About this time of year I think buyers of next Christmas' supplies go to Europe, and if some prominent buyer could be given an idea of what we want, and explain it to the manufacturer, probably by Christmas, 1914, something of this kind would be in the market.

Re distribution of booklets, I realize more every year that this is one of the best methods of education, particularly distribution by the dentist in his office, and I think a special effort should be made by the C. O. P. A. to encourage members of our profession to make a practice of it. These suggestions may be ancient history to you, but as I cannot be present at your annual meeting to make them, I am sending them to you, hoping that they may be of sufficient importance to receive consideration. Hoping you will have a large and successful meeting. Wishing you a happy and a prosperous year.

Fraternally yours,

Geo. K. Thomson.

INSURANCE HEALTH BULLETINS.

Geo. K. Thomson, D.D.S.,
St. Paul Building,
Halifax, N.S.:

My Dear Dr. Thomson,—

I beg to thank you for your favor of April 20th, suggesting the importance of including advice on preventive dentistry in our Health Bulletins. Strangely enough, I had already determined to do this in our next Bulletin. It is exceedingly important that the public should be informed on these matters. Very often dietetic measures are neutralized by failure to properly equip the mouth for the performance of its function.

Again thanking you for your suggestions, and the interest manifested in our work, I am, Very truly yours,

E. L. Fisk, M.D.,
Medical Director.

From Dr. Minogue, Vancouver, B.C.:

Dr. W. E. Willmott,
Toronto, Ont.:

Dear Doctor,—

The questions you have sent are similar to those forwarded me by Dr. Thornton about this time last year. I endeavored at that time to explain to him the little we had done and the lot we had proposed to do, but, evidently, the information did not reach the official records.

As last year, my reply to some of the questions submitted is nay, and to the others, nix.

In Vancouver we have so far undertaken no concerted educational movement as regards the general public but, for the past two years efforts have been made from time to time to interest the school authorities in the work and have a programme of lectures, instructions, etc., put into operation. Just recently a committee from the local Dental Society met the school board again and, as a result, our proposals were favorably received and a recommendation for $1,000 placed on next year's estimates to give them effect. It was conceded that this amount was quite inadequate to establish clinics, etc., but by starting in a small way it is expected, as the work manifests its benefits,, the city will increase the grants sufficiently to enable the programme being carried out in its entirety.

Meanwhile, we have been invited to give suitable instruction or lectures to the children, and in order to gather the necessary data for our volunteer lecturers, as well as slides and suitable literature, etc., we would ask the kind assistance of the C. O. P. A., feeling that their direction will save us considerable doubt in deciding what to do and how to do it.

Should the grant be carried, it is our intention to first of all have a Dental Inspector appointed to make systematic examinations and give instructions, and later, should funds be sufficient, to conduct or help in conducting clinics. This done, we will, no doubt, report to your Association for instructions for the next best move.

The school medical officer in the city carries on a systematic dental inspection in the course of his duties and notifies the parents when conditions warrant it.

I am not aware of any action having been taken by dentists in other cities in British Columbia towards furthering the prophylactic propaganda, but being, for the most part, men of silent methods and unassuming manner, their modesty has probably prevented their achievements being recorded. With kindest regards, believe me,

Yours very truly,
H. T. MINOGUE.

Dr. W. E. Willmott,
Toronto:

Dear Doctor,—

Your letter of December 13th, to Dr. Whittaker, has been referred to me. I have passed on your list of questions to Dr. G. S. Richardson, Calgary, who is chairman of the Educational Committee. I fear our province has been very lax in this matter in the past, but we hope to do better in the future.

Yours truly,
JAS. MCPHERSON,
Sec.-Treas. The Alberta Dental Association.

Regret was expressed that the replies from Manitoba and Prince Edward Island were not received in time to present to the meeting.

The different reports were adopted after a very thorough discussion in which most of the members took part.

The Association showed their appreciation of the work done by the Board of Directors, the members of the Educational Committee and the auditors by returning them unopposed to office for this year.

The members were then very enjoyably entertained by a talk from Dr. A. E. Webster, on his recent trip to England and Scotland, giving his impressions of the British Dental Association Convention, and a description of 'The Evolution of a Hutax Tooth Brush" as seen on a visit to Kent & Sons' factory where these brushes are made. The different stages in manufacture from the shank bone to the completed brush being illustrated by samples secured by Dr. Webster for the C.O.P.A. What was considered by those present as the most successful meeting held by the Association was then adjourned.

Selections

THE PREPARATION OF THE PARAFFIN ROOT FILLING COMPOUND

Herman Prinz, A.M., M.D., D.D.S., St. Louis, Mo.

The formula of the paraffin root compounds reads as follows:

Thymol	2 parts
Bismuth trioxid	30 parts
Hard paraffin melting point 56-58 deg. C. (133-136 deg. F.)	68 parts

Commercial paraffin contains many impurities, principally soluble chlorids and sulphates, water, and mechanical admixtures. To purify the paraffin, it is placed in a vessel containing water and boiled for about half an hour under constant stirring. After cooling, the cake of paraffin is removed, its lower part, which contains the insoluble impurities, is cut away, and the process of boiling in fresh water is repeated. After the second cooling, the paraffin cake is thoroughly dried and placed in a porcelain capsule and heated to about 20 deg. C. (248 deg. F.) and kept at this temperature for about half an hour. This heat removes the present small quantities of water and incidentally sterilizes the paraffin. It is now removed from the fire, filtered through cotton cloth and slightly cooled off. Under constant stirring, the thymol is now added, and, after it has dissolved, the previously dried powdered bismuth trioxid. After the mixture becomes solid, it is slowly remelted on a water bath, well stirred, and cast into suitable molds.

EXPERIMENTAL WORK.

When pure sterile paraffin is injected into the human body with ordinary precautions, it is tolerated by the tissues without further reaction, provided that the injected quantity is within reasonable limits (about 2 to 3 grams to the dose). This statement is sufficiently substantiated by the rather extensive use of paraffin for prosthetic purposes in surgical practice. The same is true of the paraffin compound as suggested by us for the filling of root canals. To verify this assertion, injections were made into the loose alveolar tissue under the skin of rabbits. The primary object of these experiments was to determine whether the tissues would tolerate the paraffin compounds equally as well as the pure paraffin. At various intervals, doses of about one gram (15 grains) of soft and hard paraffin and of the paraffin root filling compounds were injected. The rabbits were anaesthetized and these substances were introduced in a semi-liquid state by means of a heated syringe. Very soon after the injection, the substances solidified and could be clearly outlined by the touch of the finger. By testing the rabbits at various periods the paraffin deposits could always be clearly felt by the palpating finger, no change seemed to have taken place. After the expiration of respectively 2½, 4, 5 and 6 months, the paraffin tumors were removed under an anaesthetic. The hard paraffin deposits were sharply outlined, but they were imbedded in a dense capsule of tissue. By careful dissection, the deposits with their adhering connective capsules were removed. The largest of the paraffin compound deposits measured 18 x 13 x 5 millimeters and weighed 0.8 grams (12½ grains). Sections were made to detect any changes in the structure of the compounds.*

It was observed that the body of the hard paraffin compounds were intact, the capsules adhering closely to the outer surfaces and filling every crevice of the paraffin plugs. The various colored compounds were not altered in the least, which indicated that the tissue fluids had not exercised any solvent action. The paraffin compounds contained various per cents. (from 10 to 30) of hydrated iron oxid or bismuth trioxid. These observations are in conformity with the results obtained by Gersuny, Moskowicz, Stein (18) and others, who have experimented with hard paraffin. It may be interesting to know how this process of incapsulation takes place. According to the researches of Marchand, a sterile, foreign body, when introduced into the living animal tissue and left there for a certain length of time produces a series of changes which are generically known as reactive inflammation. The wandering of the leucocytes, the exudation of serum and the proliferation of the cells of the ground substance which finally organize into permanent tissue are the typical successive expressions of the irritation brought about by the foreign body, ultimately resulting in its encapsulation. If we compare these findings as observed on comparatively large quantities of paraffin with the rather small amounts which accidentally may pass beyond the foramen of a root canal in an attempt to fill it, we are reasonably certain that they will be retained permanently by the tissue without the slightest disturbance. When the semi-liquified paraffin compound is forced beyond the foramen, it molds itself about the end of the tooth and, on congealing, forms a solid cap over its apex. For this reason hard paraffin is the most satisfactory canal filling material in all cases where an open foramen, an incomplete calcified root or a perforation of the root is present.

When soft paraffin is injected into the tissue, the changes which occur differ markedly from the above observations. The soft paraffins, i.e., those which melt below 42 deg. C. (106 deg. F.), are also incapsulated, but the connective tissue fibres grow through the entire mass in all directions, and, in due time, as it has been stated by Erkstein, Delangre, Ligoric and others, this semi-organized paraffin becomes absorbed (and decomposed?) through the action of the leucocytes (ferments?). The present extensive use of Beck's bismuth paste (19) in surgery and dentistry, which contains approximately 70 per ecnt. of soft paraffin, furnishes excellent proofs of this process of absorption. Not alone does the paraffin become absorbed, but the tissue fluids dissolve the otherwise insoluble bismuth subnitrate, and, as a consequence, severe bismuth poisoning has been observed in some cases (20). Hence, we emphasize again that a paraffin which is used as a root filling material must have a melting point above 55 deg. C. (131 deg. F.).

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*For this section the tumor is best imbedded in celloidin; for thick sections low-fusing paraffin is to be preferred.

To test the impermeability of paraffin to water, innumerable tests were made. Thick-walled glass tubing, drawn out to capillary points, and extracted teeth were used in connection with various colored fluids, principally methylen blue solutions. When glass tubing is used for experimental work, its expansion and contraction under heat must be taken into consideration. It is quite unnecessary to describe the various tests in detail, but merely to mention a few, the following are cited. Glass tubes, of about ¼-inch in diameter and 6 inches long, were drawn out to fine points so as to resemble a much enlarged root canal. These tubes, from the point up, were partially filled with melted paraffin or the paraffin root filling compounds and the balance with the anilin solution. The tubes with their points down were then suspended in test tubes filled with plain water. In another series of tests, the upper part of the charged glass tubes was filled with plain water and then immersed into colored fluids. In all instances, provided the necessary technical details were observed, a water-tight plug was produced by the paraffins; no leakage could be noticed. At the junction of the paraffin and the colored fluid a slight discoloration in the centre of the paraffin could be observed, which indicated the contraction of the paraffin in hardening. It is important to observe, that this contraction occurs only in the centre of the paraffin cone at its thickest part. Again, teeth whose root canals were filled with the paraffin compound were cemented into glass tubes, the unprotected roots reaching into the tubes. These tubes were about 30 inches long and were filled with th anilin solution. After weeks of observation no leakage could be observed. Again, teeth whose roots were filled in the above manner were kept in an anilin solution, and after intervals of days and weeks were ground down to the root filling; no leakage could be observed. The results of these various tests merely indicate that the paraffin or paraffin compound when melted into a root canal *lege artis* forms an absolute water-tight plug.

To ascertain the adaptability of paraffin compounds to the walls of root canals, the canals were prepared in the routine manner and filled with the paraffin compounds The teeth were now placed in 50 per cent. has to be renewed every day. Usually within three to five days the entire tooth substance is completely destroyed. The remaining root fillings are washed in water and kept in a dish filled with the same fluid. The root fillings float on the water and may be readily studied with a magnifying lens. Great care is required in handling these delicate paraffin castings, they will easily break. The root fillings present a perfect plastic picture of all the irregularities of the root canals. The paraffin compounds had flowed into all ramifications and irregularities of the canals, even the fine burr markings near the entrance of the canals could be observed. In studying these casts, it was noticed that the irregularity of the anatomic structure of the root canals occurred with an astonishing regularity. In one case we were fortunate enough to obtain the roots of a left lower first molar of a boy, 14 years old, which had been filled with the paraffin compound by a student in our infirmary. The tooth remained intact in the mouth for 9 months and 9 days. Its cement filling was lost, and the boy returned. It was deemed best to have the broken down tooth removed. The roots were carefully ground down, and they showed perfect root fillings without the slightest sign of absorption. In a few cases we had the opportunity to fill the root canals of teeth doomed to extraction with the paraffin compound before their removal. They were subjected to the above treatment, and the results obtained were always satisfactory, i.e., they were completely filled to the point wherever the hot wire had reached.

Regarding the relationship of pathogenic bacteria to hard paraffin, we have stated above that the latter has no influence on the growth of these organisms and that it does not furnish a suitable nutrient medium for their further development. Paraffin is a hydrocarbon (not a fat) and, consequently, it is not subject to putrefaction. To test the hard paraffin in regard to the permeability by bacteria we employed the same procedures as outlined by Webster, Cook and Szabo. The apparatus employed corresponds to the one used in the tests for the permeability of paraffin fluids. The sterile glass tubes were partially filled with the paraffin compound, virulent cultures of pus organisms were added and the tubes closed with cotton. The charged tubes were dipped in sterile boullion and placed in an incubator. Within a week's time no growth was noticed. From a large number of observations we are forced to conclude that the paraffin root filling compound is impermeable to bacterial growth.

In using paraffin compound, or, in fact, any other material, for the filling of root canals, the question is often asked: What becomes of the air if forced beyond the foramen when filling a canal? This little air when forced beyond the foramen will be taken care of by the soft tissues, and, since it is not forced into a vessel, no danger from air embolism is to be expected. That such small quantities of air, even if injected into a vessel, are absolutely free from danger, has been recently experimentally demonstrated by Blair and McGuigan (21).

TECHNIQUE OF FILLING ROOT CANALS WITH THE PARAFFIN COMPOUND.

The sine qua non of a successful paraffin root canal filling is an absolutely dry root canal. To accomplish this end, certain physical procedures are in vogue, i.e., the hot air blast, the electrically heated root dryer, the heated wire, of which the Evans root dryer probably is the best known prototype, bibulous paper cones, cotton, etc. To facilitate the removal of moisture hygroscopic chemicals, i.e., alcohol, chloroform, ether and other substances, are often used in conjunction with the above enumerated means. These compounds, with the exception of alcohol, have little affinity for water, and hence are of no practical value. As we have stated above, acetone is well suited for this purpose. In drying out a root canal, it should be borne in mind that the removal of its natural moisture or any other fluid placed into it is well-nigh impossible with the much lauded hot air blast if its foramen is closed. A few trials on an extracted tooth or a glass tube drawn out to a fine solid point and filled with water or any other of the above enumerated fluids will readily convince one of this illusory conception. The fluid will move back and forth upon the elastic cushion of air confined in the end of the tooth or the tube, or, if no air is present the heated air blast will practically make no impression on the moisture column. The removal of the moisture is usually best accomplished by using bibulous paper cones in conjunction with the heated metallic root canal dryer. The secession of the hissing sound following the introduction of the hot wire indicates that the desired effect has been successfully achieved. In passing, it is well to remember that over-drying of the tooth structure is a dangerous procedure. If more or less of the water which holds the gelatinous matrix of the tooth in colloidal solution is removed by over-heating, that tooth is proportionately weakened against physical or chemical insults. Black, Cook and others have repeatedly called attention to this fact, and it is well borne out by clinical observation.

After the root canal is freed from its moisture, it is flooded with acetone and dried again with the hot wire point. The object of this procedure is to remove every particle of moisture from obscure nooks. When a root canal which is kept continuously moist with a most annoying, persistent seepage is thoroughly dried out with acetone and the heated root dryer, the seepage will usually stop immediately. A wisp of cotton wrapped about a broach and dipped in pure paraffin oil (also known by many trade names, such as liquid alboline, cosmoline, oliphane, etc.) is now passed into the dry root canal and immediately followed by the hot compressed air blast so as to uniformly coat the canal. Its object is to cover every accessible surface with a thin film of oil, which, in turn, facilitates the ready flow of the liquified paraffin compound into every available space. Too much oil must be carefully avoided. This lubricating of the canal constitutes an important factor in the correct technique of the paraffin root filling method. A cone of the prepared paraffin is now inserted into the canal and the heated root dryer passed along its side. By a gentle pumping motion the air is expelled and the semi-liquified paraffin is allowed to flow into the canal. The film of the previously introduced paraffin oil and the semi-liquified paraffin compound possesses great affinity for each other, and wherever the oil film has been deposited the paraffin compound will readily flow. Care should be exercised not to overheat the paraffin compound. It is essential, however, to keep the root dryer fairly warm so as not to chill the semi-liquified paraffin when the dryer reaches the deeper portions of the canal. As the paraffin compound melts at less than 60 deg. C. (140 deg. F.), there is no danger of burning the patient with it. Sufficient paraffin compound is now added so as to completely fill the canal. It has been suggested to finally insert a gutta percha cone or a heated copper wire into the filled canal and leave it permanently in place. Such procedures insure a more perfect filling; they overcome the shrinkage of the paraffin in solidifying. Gutta percha cones as suggested by Dunning are especially well suited for this purpose; they act as a core and insure a more perfect adaptation of the softened paraffin to the irregularities of the root canal. In using these cones their extreme points are first cut off and they are then quickly pressed in the semi-liquid paraffin. Fine copper wires for such purposes are readily obtained by cutting suitable pieces from an electric light cord. On congealing of the paraffin compound a slight depression in the centre of the filling near the entrance of the root canal will be noticed. This contraction is in conformity with the natural tendency of the hardening of the paraffin; it will always congeal from the periphery toward the centre and thereby insures an unchangeable, permanent and absolute water-tight sealing of the canal walls. The paraffin compounds finally is covered with a layer of oxychlorid or oxyphosphate cement to form a solid foundation for the future permanent filling. If it should become necessary at some future time to remove the root canal filling, the introduction of the heated wire will readily liquify it; it can then be removed with bibulous paper cones, the broach, and, if necessary, with a solvent, i.e., xylol.

The position of the patient in filling root canals of teeth in the lower jaw is self-explanatory; in filling the canals of the upper teeth, the chair is tilted backward so as to obtain a horizontal position of the upper teeth. As capillary attraction plays an important role in this procedure, the paraffin compound will readily follow the heated wire.

Regarding the instruments used as root pluggers for this work, any wire which will retain heat sufficiently long enough to melt the paraffin and which can be filed to a point fine enough to reach the smallest canals is suitable for this purpose. Silver or copper, or an alloy thereof, are good heat conductors and therefore the most suitable metals. A one-inch coil made of No. 10 or 12 copper wire, with a three-inch extension, filed to a fine point, answers the purpose fairly well, the Evans root canal dryer with its silver point is also very useful, though the best results are obtained with the electrically heated point. The heat, which can be perfectly gauged in the latter appliance, at once characterizes its superiority over the other instruments. The fine point of the root canal plugger must be able to carry a minimum temperature of 60 deg. C. (140 deg. F.).

In recapitulating the technique of root canal filling with the paraffin compound, the following points are the most important factors which must be rigidly observed:

Carefully drying out the root canals.

Lubricating the canal walls with a thin film of paraffin oil.

Filling the canals with the prepared paraffin compound by means of a heated wire, using a pumping motion.

Covering of the finished root filling with a layer of cement.

During the last two years, the improved paraffin compound has been used extensively as a root filling material in our infirmary and by a number of practitioners. So far the results obtained have been exceedingly gratifying and we now take this opportunity of offering the material and the technique of its application to the profession at large for further trials.

RESUME.

Hard paraffin, having a melting point of 56-58 deg. C. (133-136 deg. F.), with the addition of 30 per cent. of bismuth trioxid and 2 per cent. of thymol possesses the following qualities as a root canal filling material:

First It is non-putrefactive.

Second. It is sterile and slightly antiseptic.

Third. It is easily introduced.

Fourth. It is absolutely non-irritating to the soft tissues; when forced beyond the foramen of a temporary or permanent tooth or through a perforated root, it is borne by the soft tissues without the slightest reaction.

Fifth. It does not discolor the tooth structure; it possesses a distinct yellow tint which makes it readily discernible to the eye.

Sixth. It is non-porous and unchangeable; it produces an absolute permanent water-tight filling.

Seventh. It is easily removed.

Eighth. It will seal hermetically the dentinal tubuli and the formina against bacterial invasion.

Ninth. It is opaque to the Roentgen rays.—*Dental Review.*

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Societies

UNIVERSITY OF BUFFALO.

Dental Department.

The fourteenth annual meeting and clinic of the Alumni Association of the Dental Department of the University of Buffalo, will be held in the College Building on February 14-15, 1913. An excellent program of essays and clinics has been arranged. Class reunions, fraternity banquets and a general good time is assured.

Ethical practitioners are invited to attend.

D. H. McCoy, Secretary.
M. B. Eschelman, President.

ELGIN DENTAL SOCIETY.

At the January Meeting of the Elgin Dental Society Dr. Trigger demonstrated the use of a paraffin point of his own make for filling root canals. These are for sale on the Canadian market.

At the next meeting of the Elgin Dental Society it is expected that some dentist of international reputation will give an address.

THE MIDDLESEX DENTAL SOCIETY.

Drs. Trigger, Way, Kennedy, Honsinger, Lumley and Bennett of the Elgin Dental Society, attended a banquet given by the Middlesex Dental Society of London, at the Tecumseh House, Tuesday evening, January 14, 1913. The speaker of the evening was Dr. Hill, bacteriologist of the Hygiene Institute. The St. Thomas men were made honorary members of the London society.

At the Organization meeting of the Board Dr. Lumley was elected chairman. Dr. Honsinger was elected Chairman of the Building Committee and Dr. Bennett, chairman of the Manual Training Committee. Dr. Bartlett was a candidate for Alderman but was defeated. Dr. C. B. Taylor has been Secretary of the Board of Trade for some time.

At the recent municipal elections throughout the Province of Ontario were noticed the names of a great number of dentists who have been elected to positions of trust and responsibility. In the City of Toronto, Dr. Conboy was elected to the Board of Education and Dr. Chas. Risk was elected Alderman in Ward 2.

Dominion Dental Journal

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IMPROVE THE SYSTEM OF BOOKKEEPING

For many years the published annual financial report of the Board of Directors of the Royal College of Dental Surgeons of Ontario has been far short of what such a report ought to be. A board of directors doing an annual business of over $35,000 ought to conduct its business according to business methods, and if its business is so conducted the financial statement ought to show it.

The financial report of the school merely makes a statement of receipts and expenditures, substracts one column from the other, and calls the difference a surplus. During the year a great deal of material is bought and sold, such as dental supplies, laundry, laboratory and janitor's supplies. The books seem to be closed without any accounting for the stock on hand.

The business is charged at the beginning of the year with the cash on hand, and is given credit for the cash on hand at the close. Is there any reason why the stock on hand should not be treated in the same way? It is not an answer to say that it never has been done before, or that the attention of the Board had not been called to it before. Suppose a fire should occur in the building, destroying part of the equipment and part of the stock on hand, how could the claim be fairly adjusted without a stock book, or inventory of what is on hand, or a valuation of equipment or a knowledge of what equipment is in each room. Dental equipment depreciates notoriously each year. Is anything written off for depreciation?

There is no balance sheet published. The profession does not know whether they own the school building or not. There is nothing to show expenditures on capital account. In the treasurer's statement appears "payment of interest on mortgage." There is no statement among the accounts to show how much the mortgage is or if any principal has been paid each year. There is no valuation of the plant each year to show whether we are gaining or losing. For the past few years a surplus has been announced each year from the school of dentistry. It has never been less than $5,000 and sometimes up as high as $10,000, and yet the treasurer starts off the next year with a few hundred dollars on hand. Has this surplus been spent in running the Board's business, or has it gone in capital account or been used to pay off the mortgage? A balance sheet would show this.

There has been mention made of the good financial standing of the school so often and surpluses have been so frequently reported that the profession generally thinks that the school is a very rich institution. As a matter of fact not one dollar of principal of the mortgage of the school has been paid since the mortgage was given, nor is there any mnoey in the treasury to meet it when it is due. The surpluses are only a matter of bookkeeping. It would seem that the surplus is announced from the school and paid over to the Board, which spends it in running the Board's business. The Board invests its money in the buildings and equipment and gives it to the school without rentals, consequently the school can make a surplus, but when it comes down to brass tacks the whole business of the Board is not getting ahead financially. If it is, there is nothing in the published reports to show it. At the close of the last annual meeting of the Board a member was asked about the surpluses and what was being done with them. He admitted that the mortgage had not been reduced, but said we have $6,000 right now in the bank which can be applied on the mortgage. We were told, after a few months, that there was no money in the treasury and nothing had been paid on the mortgage. The fact is, even members of the Board do not know how the finances are run. This member honestly thought the money in the treasury was an available asset to apply on capital account, but the trouble is when the Board got through paying its current expenses there was little left.

Among the disbursements appears a payment of $50 to an auditor. If the auditor has properly audited the books, why does he not give a certificate and sign it? If he has given a certificate, why is it not published? Occasionally in the past the auditor gave a signed certificate, which was published. The Dental Act may not require that the books be audited, but if an auditor is employed, the board ought to demand his certificate. It is very rare that a board of directors appoints its own auditor. He is usually appointed by the shareholders.

It strikes a layman rather peculiar that the treasurer of the Board should be required to give a bond and that the Superintendant of the School should not. It is still more peculiar when regulations require that the treasurer may not pay money without the signature of the president, while the superintendant may pay any amount upon his own signature.

It is in the hope of improvement that we make the suggestion that a more comprehensive plan of account-keeping be instituted. But before a change is made it is necessary to show the shortcomings of the present methods. We think we have pointed out enough to at least bring the matter up for discussion.

ONTARIO DENTAL SOCIETY MEETING

The annual meeting of the Ontario Dental Society will be held at the College building on Monday, Tuesday and Wednesday, May 12th, 13th and 14th.

Dr. Hunt, of Indianapolis, editor of "Oral Hygiene," and Dr. Beach, of Buffalo, will be the visiting essayists. There will be manufacturers' exhibit.

The Secretary's report of the Ontario Dental Society Educational Committee will be discussed at this meeting, different members being selected to discuss the various branches of the work, such as hospital organization, school organizaiton, etc. Secretary, Arthur Day, Kent Building, Toronto.

Editorial Notes

Dr. F. E. Bennett was re-elected President of the St. Thomas Horticultural Society.

At the recent municipal elections in St. Thomas, Dr. Honsinger was re-elected a member of the School Board.

A meeting of the Institute of Dental Pedagogics will be held in Pittsburg the latter part of January.

Saturday, February 1st, a Testimonial Banquet will be tendered to Truman W. Brophy, of Chicago.

Dr. Piper, of Calgary, Dr. Harwood, of Moose Jaw, and Dr. Armstrong, of Indian Head, were visitors at the Royal College of Dental Surgeons the past few weeks.

Dr. Dulmage and Dr. Forester, of Toronto, who have each been in practice for about twenty years died suddenly in December, 1912.

Dr. Joseph Wright 1911, and Dr. M. A. McIntyre 1912, were two of the three successful candidates in the recent B. C. Examinations. Twenty-five candidates wrote.

The Odontological Club of Toronto was specially honored a few weeks ago in having the privilege of entertaining Prof. Hopewell-Smith, of London, England, who visited Canada on his way to the meeting of the 6th, 7th and 8th District Dental Society, at Rochester, New York. During the few hours he had to spare in Toronto he visited the Royal College of Dental Surgeons and addressed several of the classes, visited the Ontario Horticultural Exhibition, addressed the Odontological Club on some of the recent problems in connection with diseases of the peridontal membrane. It would appear from the numerous X ray slides shown that in those cases where the compact bone around the socket is lost there is little hope of retaining the tooth.

Ontario Graduate wishes position as assistant with a good office, all round man; references. Would rent practise and office from good ethical dentist. West preferred. On percentage or straight rental. Box 101, Dominion Dental Journal.

Reviews

Dental Jurisprudence; The Law Relating to Dentists and the Practice of Dentistry, by William E. Mikell, Professor of Law in the University of Pennsylvania. Lea & Febiger, Philadelphia and New York, 1912.

This book of five hundred pages contains an alphabetic list of the Dental Acts of the United States, Canada, Great Britain, Australia, New Zealand and South Africa. The first 175 pages are made up of the general considerations of Dental Jurisprudence under the heading of the status of the dentist, the relation between dentist and patient, the liability of the patient to the dentist, the liability of the dentist to the patient for breach of contract, the liability of the dentist to patient for malpractice, the liability of the State, the dentist as a witness, and the liability of the dentist to jury duty. The author points out that this work is intended as a text-book, not with the idea that every dentist should be his own lawyer, but hopes that it will assist the dental profession to a clearer understanding of their own responsibility to their patients and to the State. Many of such works in the past have dealt with this subject in such a general sort of way that it didn't seem applicable to dentistry at all. This work brings the case within the reach of the dentist.

Dental Laws Condensed—A brief guide to the requirements of Dental Examiners for Applicants for a License to Practise Dentistry in the United States of America and Island Possessions, Canada and the Provinces, also the leading civilized countries throughout the world. by Alphonso Irwin, D.D.S., Camden, N. J., member of the American Medical Association, the National Dental Association, the New Jersey State Dental Society, Southern Dental Society of N. J., the National Board of Dental Examiners and the New Jersey Board of Registration and Examination in Dentistry, 1912.

This is just what the title indicates and is one of the most useful little books to hand in some time. The dental laws of every country in the world are epitomized. It is so indexed and divided into parts that it is easy to find what is needed. It is a god-send to deans of colleges and editors of dental magazines. Enquirers for dental laws can be referred to Alphonso Irwin, the author at Camden, N. J., U. S. A., where they can find what they want. Part one includes the United States and its possessions. Part two includes Canada, where Newfoundland is arranged alphabetically as part of Canada. This error is common in the United States. Part three is under foreign countries, which implies that part two or Canada is not a foreign country. If some of our Canadian politicians see this it will be used for campaign literature.

REAL CLEANLINESS

There is a type of dentist that, some of these days, is going to be called sharply to account. The general public has become so educated in hygiene that legislation is demanded to correct many evils that menace health and shock our sense of decency.

The common towel and the common drinking cup have been placed under a ban. In certain States, barbers have been brought under laws relating to hygiene and sanitation; and just as soon as other evils that menace public health are brought to light, they will be corrected by legislative fiat.

Probably nobody has thought of dentistry in this connection, because the outward show in the average dental office is apt to inspire the laity with admiration for its cleanliness. We have aseptic furniture, porcelain tables and fixtures; and even the chair arms are being replaced with enamel ware, in order to get rid of the dreaded microbes.

But beneath the surface of this outward display, there is, at times, the most repulsive practice imaginable. There may be ostentatiously displayed a sterilizing apparatus, and it may be regularly employed, and yet there may be in repeated use in the mouth of patients, articles which are not, or cannot be sterilized.

One need only mention broaches, polishing wheels, bristle brushes and materials for taking impressions, which in certain offices presenting a pleasing outward appearance, are used over and over again.

We suppose that some men will always practice this petty economy at the risk of infecting their patients with disease germs, carried from one mouth to another, but greater insistence on real cleanliness, both by the faculties of dental colleges and dental societies would accomplish something.

For the public is already awake to the possibilities of the spread of disease in this manner. But the dentist is so nice and particular in his outward showing that he is not accused of covert offending. Once permit the public to see the real conditions in a few dental offices, and the whole profession will be hampered by restrictions that will be irksome, if not intolerable. For the average American when he scents a wrong immediately hies himself to his Legislature for redress.

Our code of ethics contains many very admirable things; but it should add another: "Do not merely appear clean; be clean."—Dental Brief.

ASSISTANT WANTED—Must be graduate, capable man and willing to remain at least one year if services are satisfactory. Splendid opportunity to work up his own practice at a good salary. Duties to start as soon as possible. Experienced man preferred. W. W. Wright, 218 McIntyre Block, Winnipeg.

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Original Communications

THE GREATER PROBLEMS

DONALD M. GALLIE, D.D.S., CHICAGO, ILL.

Read before Toronto Dental Society, January, 1913.

If my personal wishes were the ones that received my consideration, my address would naturally relate itself to the work that I am particularly interested in, operative dentistry, but since it is my conviction that you seek something which may be of interest to all present, rather than the mere concern of a few, my paper will deal with the general rather than the special. With this conception of your desires, and with such a construction upon my invitation, it shall be my earnest effort to direct your attention to what, after careful observation, seems the problems which at this period confront our profession.

Let me impress you emphatically with this basic thought, that while it is remote from my intention to awaken unanimous approval of my suggestions, yet with a desire for the betterment of my profession, I will appeal to those of you who in your honest love of dentistry, hope to see its art and science brought forward and upward to a higher and nobler standard. I assume that some of you will feel that my criticism is not fair; others may say that I am unmindful of the great men and achievements of dentistry, and others may feel that I am needlessly alarmed.

Every progressive movement disturbs things; every advance means that some people must fall to the rear. G. W. Curtis, the distinguished author, has well said: "Progress begins with the minority," and the safest way to bequeath dental progress to the generations to come is for the present practitioners to acknowledge candidly wherein they are at fault, and in what they are ignorant. And, if confession is good for the soul, acknowledgement is splendid for the body.

We as a profession have, in the past number of years, devoted ourselves most earnestly to the departments of dentistry which relate themselves to the dexterous, the manual, the mechanical, and to that which can be discerned with the naked eye. We have sought results which can be observed by the community, and with that which seems to appeal to the sense of sight. We have by this devotion to the handicraft assumed a position in the estimate of the general public which, quite satisfactory to our patients, seems to reward us with the praise of success, but where do we actually stand when we consult our own conscience? What is our position as measured up by the other great professions? And is our pedestal high in the estimate of experts in the fields in which we but dabble? These are sharp questions, and they admit of actual truths of our present status.

Now, while our progress of the past years has been most pronounced along the operative and the prosthetic, and we are quite agreed about cavity preparation, filling materials, band construction, crown formation and the treatment and filling of root canals, yet the basic or the fundamental features of the art and science of dentistry have dragged along in a most sluggish fashion when compared with some other callings which are speeding at our sides.

The discords of the mouth which arise and grow to a point where the eye can see them, these too have received considerable attention, but what of the discords, disorders and ailments which are only dimly apparent, what of the disturbances, sub-membranous and the great diseases which have their inauguration in osseous tissues, these condition have received some consideration from a few who are especially concerned in oral surgery and oral pathology, but their labors have indeed been entirely too meagre as practically all our dental researchers are engaged in making a livelihood. Dentists have to work from early morning until evening and are then physically and mentally unfit for scientific work, hence the spare moments which they have been able to accord to research work is so little, that practically nothing of a remarkable nature has come to the surface during the past score of years. Our present policy of waiting for some individual to devise some new ideals, or to wait until some fortunate practitioner stumbles on some new discovery is entirely beneath the dignity of what our calling should be. Let us direct our attention to some of the unsolved problems which confront us; let us consider our success or failure in dealing with the most prevalent disease known to humanity and which to-day is our greatest problem, namely, caries of the teeth. What are we doing to-day to prevent caries that has not been advocated and tried for centuries? This may seem like an absurd question, but let us turn back the pages with Gureni and others in dental history, and we find that three thousand years B. C. the Egyptians were instructed to care for the teeth in much the same manner as the people of to-day, as the following prescription and instructions will show:

Powder of flint stones	1 Pt.
Green lead	1 Pt.
Honey	1 Pt.

To be rubbed on the teeth with a frayed stick. The Chinese and the Greeks likewise took similar precaution. The following, taken from Aristotle's book on Problems, clearly shows how near he was to an understanding of the cause of caries. He says: "Why do figs, when they are soft and sweet, produce damage to the teeth? Perhaps because the viscous softness of the figs causes small particles to adhere to the gums and insinuate themselves into the dental interstices, where they very easily become the cause of putrefactive processes."

Paul of Aegina, during the Seventh Century, gives the following rules for the preservation of the teeth: All tainted food should be avoided, and also all possibility of indigestion, and frequent vomiting, or the use of such foods as may easily leave a residuum between the teeth; for example, dried figs, likewise very cold food, and such as set the teeth on edge; that hard things should not be broken with the teeth, and that the teeth be cleansed carefully, especially after the last meal of the day.

During the Fifteenth Century, Giovanni of Arcoli, drew up ten canons of dental hygiene as follows:

1. Nothing must be eaten or done that would interfere with digestion.
2. Vomiting.
3. Sweet and sticky food.
4. Hard substances.
5. Food which sets the teeth on edge. All to be avoided.
6. Food too hot or cold.
7. Leeks.
8. Teeth should be cleaned with a piece of stick after every meal.
9. The mouth to be washed out afterwards with an aromatic decoction.
10. A dentifrice to be used the last thing at night, or the first thing in the morning.

Has D. D. Smith, or any other modern dental prophylactitian anything over Giovanni for oral hygiene?

Pierre Fanchard in his book published in 1728, after dealing with the questions of tooth brushes, makes this statement: Little or no care as to the cleanliness of the teeth is the cause of all the maladies that destroy them. Many other early writers could be quoted, showing that in the early days these men recognized the importance of oral hygiene, and the part that food played in the preservation or destruction of the teeth, and this ages before the discovery of micro-organisms, ages before Miller gave to us the now universally accepted theory of caries; and yet with the latest knowledge what more are we doing outside of skilful reparative work than was done by the ancients? Let us look for a moment to the instructions of the present day. The British Dental Association some few years since issued a pamphlet advocating the following:

1. The use of small tooth brushes with stiff bristles, used after each meal.
2. The use of alkalies, such as soap, chalk, whiting and common salt.
3. The use of hard food.

Dr. Rose of Germany, one of the ablest authorities in Europe, advocates the following:

1. Education of children and guardians in oral hygiene.
2. Mechanical cleansing of the teeth with a suitable tooth brush or pick.
3. Avoidance of soft sweet food.
4. Active mastication.
5. Alkaline and antiseptic dentrifices and mouth washes.

In this country the literature of the profession has been teeming with oral hygiene suggestions, and yet with these centuries of effort in mastering caries of the teeth by oral cleanliness and reparative means, we find to-day caries of the teeth more prevalent than ever before.

Some may question the statement, but a study of the races and the advance of civilization proves it without doubt; the so-called higher civilization has in all races been accompanied by increased susceptibility to tooth decay.

Pickrell in his splendid work, "The Prevention of Dental Caries and Oral Sepsis," has this to say on this subject: Magitot in his exhaustive examination of skulls of primitive races in the Paris Museum, found no trace of dental caries in the following: Mexicans, Peruvians, Patagonians, Aborigenes of Australia, Madagascar, New Caledonia, the Malay Peninsula and Java.

J. R. Mummery, that master English scientist, in his splendid work on this subject, shows the following conditions in the existing primitive races:

Percentage of skulls showing carious teeth:

Esquimaux	1.4
Maoris	3.0
Fiji Islanders	5.2
Northern Hindoos	5.9
North American Indians	9.5
Zulus	14.2
Australians	20.5
Negroes (slaves)	20.8

You will notice that these races represent every part of the globe.

We next turn to the tabulations of the Physical Deterioration Committee of Britain, reported in 1904 on the condition of teeth of children of two highly civilized countries, namely, Great Britain and Germany.

Percentage having carious teeth:

English and Scotch school boys and girls	86.00
Residents of Baden	98.75

Residents of Hamburg	96.40
Halifax Children	95.00
Leith School Children	98.60
Birmingham School Children	94.70
Cambridge Dental Clinic	96.50
School Children of North Germany	95.00

And what is true of the children and people of Britain and Germany is likewise true of the children and people of France, Austria, United States, Canada, and all other highly civilized nations. Now, does it not seem in the face of the foregoing figures, that our treatment and our understanding of this disease is to say the least faulty. Is the world going to remain satisfied with this condition? What would the world say to-day if cholera, smallpox, diphtheria, typhoid fever and tuberculosis were on the increase? Is the dental profession going to remain satisfied with our present record? I think not. We must not remain satisfied with the knowledge that microorganisms acting on the carbo-hydrates form an acid destructive to tooth tissue, and combat it with superb craftsmanship; we must go back further and find some means of preventing or some agent to neutralize this action.

Mouth washes and dentrifices are a failure. Keebler, the United States chemist, in a paper before the National Dental Association in Washington, stated emphatically that not a dentrifice or mouth wash on the market, with the exception of hydrogen peroxide, had any antiseptic effect whatever on the teeth or mucous membrane. Where then shall we turn in seeking aid to combat the ravages of decay? Shall our ally be the saliva? And how little we know about it. Physiologists admit that its real importance and full function are not fully understood.

The splendid work of Michaels has done much to interest physiologists and impress upon dentists its importance. The recent article by Dr. Joseph Head entitled "A Study of Saliva and Its Action on Tooth Enamel in Reference to its Hardening and Softening," published in the American Medical Journal, December, 14, 1912, and the splendid contribution of Professor William Gies, of Columbia University, published in the Cosmos, January of this year, indicate that the profession is beginning to realize that in the saliva we likely have a protective power.

Pickrell in the Chapter on the Saliva in his work has this to say: "It is perfectly obvious that a fluid in which the teeth are permanently bathed, which flows over the teeth to the extent of several pints daily, cannot be without effect. Again, since it is a normal physiological condition, it cannot be but that it is a beneficial one, and one which we should be justified in stating to be protective in function, even though no more is known about it. Protection against disease is afforded to nearly all tissues largely by the fluid in which they are bathed, and the only fluid capable of protecting the surfaces of the teeth is the saliva. And he further states that in the saliva is provided a natural and potentially perfect mouth wash, acting continuously day and night, not merely for a few minutes a day; that it is, moreover, completely under control; that it may be altered or varied in amount and composition, that its beneficial effects may be increased or decreased absolutely at will. Pickrell further shows that this control both of flow and composition is regulated by diet. If this is true, and I believe every man who reads the exhaustive and scientific experiments carried out by Pickrell will agree that it is true, is it then not time for dentists to understand something about diet or the food habits? Here we have the primary cause of caries first by the lodgment of the carbohydrates on the teeth, and secondly by its effect on the saliva, and yet hardly a dental college in the country gives a lecture on dietetics.

Let us consider three types of cases that baffle us, and which can be traced to some systemic condition which we do not understand. Let us consider first the patient with the thick ropey saliva. We also find here evidence of the lodgment of food stuffs and the condition of the patient usually anemic. These conditions are always accompanied by excessive destruction of tooth tissue. Prophylaxis and repair do not stem the tide of decay. The teeth seem to melt away or collapse, and what do we do? We may or may not make a litmus test; likely we suggest vigorous prophylaxis, repair the destroyed surfaces, and prescribe milk of magnesia or some mouth wash. Again, take the patient well advanced in adult life, who has been immune for years from caries, and without warning and without any outward evidence we find the teeth giving away under the renewed onslaught of decay. Or let us consider the case of some of our young patients, especially young ladies from sixteen to twenty, who have passed through the most critical period of susceptibility to decay without any great damage, and without warning we find the chalky crescent outline on the gingival thirds of the labial and buccal surfaces of the teeth. I have in mind a young lady, nineteen years of age, as perfect a specimen of young womanhood as ever lived. She has been under my care since she was ten years of age. Up to the present time she only has three fillings, one a proximo-occlusal in an upper bicuspid, and two small occlusal cavities in lower molars. She has always been most particular in the care of her mouth. A year ago she went east to college and returned for the holidays. She called to have her teeth cleaned, and upon examination I was horrified to find this chalky crescent area on twenty of the thirty teeth. None of them were sensitive, but many could be penetrated with a sharp instrument.

Gentlemen, what progress are we making in solving these problems? Is it not time that we had some authentic data to guide us in handling such cases, Is it not time for us to know something about the constitutional disorders back of these conditions. If it is a question of diet, exercise.

hygiene, occupation or climate, that has this influence, then we must become familiar with them and their effects. How many of us have any control over our patients as to what they shall eat, and this applies especially to children. We should insist that such foods as will develop both the teeth and salivary glands should be given. Unfortunately the opposite is true of our children to-day. Soft, sweet, mushy foods are the ones craved and given, with the result that too often the result is as Rose so well puts it, "He who saves the teeth of his children by giving them soft sweet foods, saves them for the dentists forceps."

We will next consider a disorder which is responsible for as much physical devastation as any disease the flesh is heir to, namely, pyorrhea, alveolaris. Not so long since a writer made the assertion that "of late, the diseased pyorrhea alveolaris, has come to be known and named." The facts are that this oral disorder was named as long ago as 1875, and as far back as 1876 the Dental Cosmos published articles on this disorder of the same name. Besides, let us not forget that Riggs' disease, as pyorrhea alveolaris was called, was extensively written about by Riggs, and the dental literature as far back as 1863 contained many articles on this oral and dental disturbance. Upwards of twenty-four articles on this theme appeared in the Cosmos before 1883, thirty years ago. What have we done to stop the ravages of this disorder? What have we contributed to the science of dentistry, which lends assurance that we are not only temporarily relieving? Let me repeat, what have we actually accomplished in preventing or curing pyorrhea alveolaris? Of all the methods recommended, which one do you individually adopt? Which method seems to have advanced to a point where it can have and now be proclaimed as meriting the approval of this body? Do you scrape off, scratch away and injure the peridental membrane; do you cut away gum tissue, and remove the necrotic alveolar process, do you extract, or do you medicate, or what other process do you apply and why?

The profession is divided into two factions on the question of whether the disease is local or systemic. Much energy is spent in coining new names for it, and the devastation goes on just the same. Think of this devastation first from a purely dental standpoint. To-day our patients, both men and women of over thirty, are losing far more teeth from this cause than they are from caries. And next its systemic effect. Think of the diseases traceable to this scourge.

Baker in his article entitled "The Natural Field of Dentistry," published in the Cosmos, June, 1912(gives the names of 125 diseases traceable to mouth conditions, the most of them traceable to pyorrhea. In the same paper he gives the bibliography of authors who are authorities for the statement as to etiology.

If we are still groping for light on caries and pyorrhea, what about other oral disturbances? What of erosion? What more do we know about this dental mystery than we knew a score of years ago? We have written some, listened long, and guessed more, and still we are deeply in the woods. It still remains for someone to discover whether its etiology is traceable to bacteriology, chemistry, or mere mechanical friction. The surgical treatment of root and alveolus is as yet but vaguely understood. I am of the firm conviction that this field affords an opportunity of the most wonderful possibilities. The question of replantation, transplantation, and implantation appears to most of us as a bogeyman. Yet Jenkins, of Germany, states that the replantation of teeth with chronically diseased roots is a common practice in Germany, even in small circles of practice, and attended generally with most favorable results.

If such results are obtained by replantation, is it not possible that in the future the transplantation or implantation of roots, either natural or artificial, will revolutionize the substitution of lost dental organs. During the past two years I have had the oppportunity of seeing a good deal of work of this description; mouths with bridges and crown attached to transplanted natural roots, and bridges attached to artificial abutments, and I must say the results are excellent. They have not stood the test of time, and I don't know as they will. The one on natural roots has been in three years; the one on artificial roots two years. These operations I feel were not done under strictly aseptic surgical conditions, yet they were as firm and healthy looking as any bridge I have ever seen. The bone surgery of Murphy, of Chicago, and Lane, of London, conclusively demonstrates that the osseous tissue will tolerate most anything, provided it is surgically clean. Spikes, nails and wire are used with impunity. Sections of bone from lower animals are grafted to get boney union in the human. The bone of one leg of the patient is split to provide tissue for an injured bone in the other leg.

In the light of these wonderful surgical achievements is it too much to say that the bones of the jaw will also tolerate that which other bones of the body do? It is always expected of the one who criticises and finds fault that he offer a remedy. Gentlemen, I must confess I have no specific. I can only offer a cure by suggestion. First, we must get on better terms and have a better understanding with our medical brothers; they are truly our brothers, all members of the great healing art, and they need our assistance as much as we need theirs. We should profit by some of the advantages the other specialists in medicine enjoy, and the time is coming when we must in a measure follow their example. It is the desire, and I may say absolutely necessary, that a graduate in medicine before he goes out to practice, obtain a hospital appointment. If he intends to specialize, he seeks an interneship in a hospital where he can get special instruction and clinical experience in his particular specialty

Later, he has the advantage of taking post-graduate work in many schools throughout the country. Harvard, Johns Hopkins, and McGill are splendid examples. If he finds the need of further scientific work, he makes a pilgrimage to the shrines of higher medical learning, such as can be found in Berlin, Vienna, Paris, London, and Edinburgh. He enjoys the advantage of a splendid literature, including all the best translations, and lastly if unable to solve the problems, they are taken to that great endowed institution for medical research, the Rockefeller Institute, where such men as Alexius Carrell are devoting their lives to original research. These great advantages help the medical profession to meet the demands of humanity for a better medical service. Does this not awaken in you an honest response that we should not continue to rely on individual constricted and limited investigation, but reach out for broader light and more mutual assistance. Dentistry of to-day and the future demands a higher standard of fitness than heretofore. The course of study must be lengthened to four years in every school in the country; the curriculum must be so changed that time will be given to the thorough teaching of the sciences. As Kirk so aptly puts it, "Dentistry has pased out of its swaddling clothes of mechanical craftsmanship into the fuller stature of professional attainment; it can no longer claim manual skill and mechanical achievement as the principal ideal, as the be-all and end-all of dental training, but it must regard those excellent and essential features of its educational scheme as means to ends, not as ends in themselves." The most thorough course should be given in hostology, physiology, physiological chemistry, bacteriology, and pathology. It is in the college and during his student life that a man gets a taste and desire for scientifie and research work. A student may leave college not as fit in the arts and crafts as we would like to have him, and yet become a safe and skillful operator simply by daily practice, but let him leave college with limited knowledge and no taste for the fundamentals of our work, and there is little likelihood of him acquiring a taste later for scientific investigation. But all this college advancement can only come through the dental profession. Let the dentists demand an advanced standard, and I am sure the colleges will be quick to respond. While the colleges must be depended upon to care for the future, the great needs and demands of the hour must be considered. Every national, state, provincial, and city society should have a department of research. The national organizations should direct their energy and financial support in having men appointed in the great institutions of this country, such as the Rockefeller of New York; the Forsyth Dental Institute of Boston; and the Evans Dental Museum of Philadelphia, and should publish a journal which will give us the best in dentistry both at home and abroad. State and provincial societies should conduct post-graduate courses. This has been successfully carried on in the State of Illinois for the past two years, and in Germany, under the direction of the University of Berlin, this post-graduate work has been carried to all the smaller towns with wonderful effect. It is, in the large centers, however, that we must look for the greatest advancement and greatest results. In cities that have the advantage of a University with its departments of science, medicine and dentistry, the dentists should organize study clubs under the direction of one of their number, and associated with a physiological chemist, and pathologist in the university, who have all the advantages of perfect equipment and facilities for such work. We should also have the aid of some eminent physician who realizes the importance of mouth conditions and their relation to the system, to whom we could refer cases for diagnosis that baffle us. This medical associate should be a man of the highest scientific attainments, capable of making the most complete physical examination, who is capable of making a thorough analysis of fluids of the body, familiar with the functions of every organ, and who could show us the correlation of his findings. We should make the most thorough examination of all cases presented, taking the full history of the patient and keeping a record of the minutest details. By these means we will be able to establish data which will guide and aid us in understanding these diseases we are called upon to treat.

America, and I include in this term Canada, and the United States, have long held the honor of being the leaders in modern dentistry.

We have given to the world Miller, Black, Hayden, Harris and others. We must produce men to take their places, or we will be compelled to relinquish this proud distinction to our brothers across the sea, who are working hard and studying dilligently to solve the greater problems.

DISCUSSION OF DR. GALLIE'S PAPER.

HAROLD CLARK, D.D.S., L.D.S., TORONTO.

Mr. Chairman and Gentlemen,—Any one who knows me knows that Dr. Gallie's paper interests and pleases me. I like the paper and I like the title. Dr. Gallie has never struck me as a pessimist. I know that he isn't a pessimist, but I find in his paper a note of pessimism or impatience with the profession at its seeming apathy or indifference toward "the greater problems." I cannot forget that less than three generations ago the dental profession found most of the whole civilized world tortured with Burns' Hell of all Diseases. In the interval between then and now the record of accomplishment by the profession is in my mind one of the wonders of the past century, and I am proud to find myself in such a progressive and useful profession. But up to the present almost the entire effort of the profession has been in the direction of reparative work after the damage has been done—to relieve the agonies of aching teeth—to restore or replace the wasted organ with the minimum of pain in the operation. So much has been accomplished in this phase of the dentist's work there cannot be much more to do beyond the improvement of details. And already there are abundant signs that the thinking, ingenious, investigating members of the profession are turning to new fields of effort, to the solving of the greater problems; seeking the causes of dental ills and learning how to prevent them. Then will come the propaganda of education. Dr. Gallie will be glad to learn that considerable active interest is being taken here in Toronto by several of the profession in gathering information bearing on the causes of the various dental and oral lesions. In addition to Dr. Gallie's inspiring paper we have already arranged for a paper by Dr. Kirk next fall, giving us the last word on the relation between diet and these dental lesions, and posting us on the most effective way to carry on scientific and reliable investigations into the causes of them. Every practising dentist, however busy, should during the next decade be an observer with the patient under his hand and add his little to the mass of data from which the more specialized research men will deduce their conclusions. But the main work must be done by men with a genius for investigating and a training for that kind of work, and they should do their work in our infirmaries, where large numbers will give them opportunities the private practitioner cannot have. And these men should be amply remunerated.

It is surely humbling to the pride of civilization that with all its knowledge and achievements, with all its pity and missionary yearnings toward the poor uncivilized savage we have to know that the poor savage is practically immune to dental caries while civilized man is rarely without it. Yet we meet enough immunes to convince us that immunity is not incompatible with civilization, and that properly directed research will enable us to lay our finger on the cause of caries, or rather on the cause of the cause, if we must accord Millar the honor of discovering the cause of caries.

Dr. Gallie refers frequently to Prof. Pickerill's work on "The Prevention of Dental Caries." I would advise everyone here to read this work. It will inspire him with the hope that we may solve the greater problems, and that a larger day awaits the dental profession; that its achievements in the future will be a far greater boon to humanity than anything it has done in the past.

For a long time I have been convinced that the over ingestion of carbohydrate food was responsible for nearly all of dental caries, not so much by the debris left in the mouth as by reaction after digestion on the fluids of the mouth. One of my most convincing proofs has been in my own family—the only community where I could be a dictator and order a diet in accord with my conclusions. My own teeth as a child were very carious. So also were my wife's. So by the laws of heredity our children had no change of escape. But as a matter of fact they are as immune as any little Igorrotes or Maoris.

Any dentist entering on this work of investigation should have great hope and confidence of success if he will keep a few facts in his mind, viz.: the immunity of the savage; the immunity of a percentage of civilized people; the immunity of many people in delicate health; the immunity of many at different periods of their lives; the immunity established in individuals after a change in diet. With these facts before us surely we can find our way to a rule of life by which anyone may become practically immune. And anything we do to prevent dental caries brings with it an added reward in the prevention of many maladies that depend on carious teeth for their origin.

Dr. Gallie refers to a return of susceptibility in a man of years after a life of immunity. In recent years I have found that in such cases a little careful enquiry disclosed some change in the individual's diet that was accountable for the sudden attack of caries. The essayist also tells us of an immune young lady who went east to school and when she returned she didn't bring her immunity with her. It wasn't because she went east. It wasn't because she studied too hard. That school down east may have had smuggled candies or boxes of sweets from loved ones at home or starchy puddings at its tables. I have practised among these school girls too long not to know that most of them do·

Now we come to the consideration of pyorrhea. I have kept a list of my pyorrhea patients that I have sent to Dr. McDonagh for treatment, and when I look over the list I am struck with the fact that they generally conform to a class having similar characteristics. They are usually at or past middle life. They are usually of a robust and vigorous type. An enquiry usually develops the information that they in earlier years had led very active lives. As they got older their activities lessened, but their vigorous appetite stayed with them. An enquiry into their diet usually elicits a preference for a strong proteid diet.

Before resuming my seat I want to thank Dr. Gallie for the enjoyment I have had listening to his excellent and stimulating paper, and I congratulate the Toronto Dental Society in having the privilege of hearing it.

DISCUSSION OF DR. GALLIE'S PAPER.

H. E. EATON, L.D.S., D.D.S., TORONTO.

Mr. President, Dr. Gallie, and Members of the Toronto Dental Society:—

When I read Dr. Gallie's paper, I was reminded of the man who came to engage a minister for his church. To guard against giving too flattering an account of the church conditions, he greatly emphasized the difficulties to be surmounted. When he had finished, the minister began to laugh. "What are you laughing at"? asked the man. "I was just thinking," replied the minister, "that you had missed your calling; you should have been an undertaker, for you have done as fine a piece of undertaking as I have ever seen, and you have draped it with crape from top to bottom."

Then thinking it over, I asked myself the question, "Is it possible, that all which has been written and discussed in recent years along the line of prophylaxis has been to no purpose?"

I took a glance over some of the recent Dental Magazines, in which I found contributions under such titles as the following: "Oral Micro-organisms—A Bacterio-Chemical Study of Dental Caries," "The Origin and Significance of Sulfocyanate in Saliva," "Some Observations on the Clinical Examination of Saliva," "Immunity and Susceptibility of Teeth to Caries," "Decay of Teeth, Its Causes and Prevention," "A Contribution to the Study of Immunity to Dental Caries," "The Accelerating and Inhibiting Agents in Oral Secretions."

I again asked myself the question, "Have the writers of these papers wasted their time and energy in writing to no purpose? Can it be possible, that with all this effort, and the untiring effort of previous years, we have made no progress beyond the ancients of three thousand years before Christ in the matter of saving the teeth, other than repairing the damage after it has occurred?"

No, I cannot think that the labor has been as fruitless as Dr. Gallie would have us believe. If no progress had been made beyond what has been accomplished in the matter of educating the public in the care of their teeth, and enlisting their sympathy and co-operation in the work, I would say, great progress has been made toward the goal of immunity to caries. I am hopeful that in educating the public, there will come back to us such a demand for further information that we shall be urged to greater and more serious effort, which in turn will bring greater results. The day is fast passing when the wise look and a shake of the head satisfies our patients.

USING PARAFFIN AS A ROOT FILLING

T. C. TRIGGER, D.D.S., L.D.S., ST. THOMAS, ONT.

Read before Elgin Dental Society, January 10, 1913.

If we care to review the history of root fillings ever since the question of saving teeth has engaged the attention of the profession, we will readily observe that many materials have been used. Some of them still remain to the present time as possessing excellent qualities as root fillings, while many which were once highly advocated and extensively used, are now no longer in vogue; take, for instance, gold foil, which was considered at one time a perfect root filling, and probably the oldest material used for these operations is to-day quite unfit for that purpose, as well as some of the base metals such as tin and copper points.

It is through our broader knowledge of the anatomical conditions, together with a better understanding of diseases brought about by the invasion of micro-organisms, we have likewise demanded filling materials which will comply more with the present conditions.

At the present day the most popular and most used root filling is gutta percha, but while it is used greatly, it is by no means an ideal filling. However, it meets the requirements to a greater degree than any other filling. This material, owing to its non-conductive and non-irritative properties, is a very agreeable canal preparation. This substance can be formed in a solution, on the addition of chloroform, so that in this fluid state it can be introduced or pumped into the most tortuous canals, and after evaporation leave the gutta percha in a solid state.

According to clinical records, zinc oxychloride is also considered to be one of the best root filling materials. If mixed to a cream-like consistency it can be introduced into the most remote part of the canal; this substance remains for a long time antiseptic on account of the zinc chloride it contains. There are some disadvantages in its use, one especially if the material is passed beyond the apical foramen it may cause inflammation.

The chief object in filling root canals is to hermetically seal the canal and close the apical opening, and thus prevent the ingress of poisonous substances, gases, micro-organisms or any waste products into the canal. To do this the material should be of such a nature as to remain unchanged through any influence which would be likely to occur. Another quality should be that the material has a non-irritating effect and also that it should be impervious to moisture or septic matter; should possess antiseptic properties and also be sterile when placed in the canals.

I have already stated some of the more important root fillings which have been used with gratifying results and have been the means of saving thousands of teeth, yet they do not fill the requirements in every case, and it must be admitted, too, that many materials which have been used and are still being used have been the means of losing many teeth. I would rather rely on solid root fillings, such as would entirely close the canals than those which are introduced in a semi-solid paste.

Some years ago Dr. J. Foster Flagg introduced and recommended root canals filled with cotton saturated with carbolic acid or creasote and the like. This we must admit, that many roots thus treated resulted in no harm, while on the other hand many roots filled in this way became infected. This method of filling roots has still many advocates. However, at the present time this material is not used as much as formerly.

A few months ago I received an inquiry from one of the committee of the Japan Odontological Society, asking my opinion as to the best root filling, and on reply I stated that in Canada and the United States gutta percha was mostly used. This they were anxious to know, as the society were investigating the best means of filling root canals. I also intimated that paraffin or paraffin compound was again being used and recommended in America by a number of operators who have been using it successfully to warrant it a place among the best of root filling materials.

It was in the year 1883 that paraffin was first recommended and used as a root filling and it was about fifteen years ago I first used the allied preparations of paraffin in the form of petrolatum and subsequently paraffin. The method I employed was to force or pump the ingredients well into the root canals and then saturating asbestos fibre with it previous to packing it into the canals. It occurred to me that by adapting this means it would prevent any ingress of moisture into the canals, at the same time would prevent any putrefaction.

Dr. Hermann Prinz, of the Research Laboratory of the Washington University Dental School of St. Louis, has made experiments to sufficiently prove that paraffin with the addition of bismuth and thymol, make an ideal ingredient for root filling. This combination I have likewise used with gratifying results. It is needless to give a description of paraffin, but if you turn to your Pharmacopeia a full account will be given of this product. The U S.P. states that paraffin is "a mixture of solid hydrocarbons, chiefly of the methane series, usually obtained by chilling and pressing the distillates from preprolium having a high boiling point and purifying the solid pressed into cakes so obtained." For the purpose of filling root canals the paraffin should be hard and have a melting point about 135° F. Any inferior paraffin of a low melting point would be quite unfit.

This preparation I have used with excellent results especially where there is a possibility of serum seeping into the canals from the apical foramen, thereby furnishing nutritive product for the development of micro-organisms.

This preparation is a *par excellence* material for root filling on account of it being non-porous, forming an absolute watertight filling.

Owing to this preparation being in the plastic state it can be formed to any size to accommodate the root canals. It is absolutely necessary, before introducing the paraffin, that the root should be absolutely dry. This can be accomplished by saturating the canals with chloroform or alcohol and then thoroughly drying them with a heated probe or a suitable electric heater and previous to the insertion of the points if the canals are wiped with petrolatum it will greatly aid the point in gliding into place.

Previous to the introduction of the points they may be immersed in collodion. This will stiffen the points so that they can be forced into place without being broken. Into the most intricate canals the paraffin can be conveyed by means of a heated wire, using a pumping motion. To accomplish the best results in the use of this preparation every detail in the technique should be carried out.

After the paraffin is in position the finished root filling should be covered with a layer of cement.

Dr. A. E. Webster, of Toronto, in a course of experiments, has shown by testing various materials of their sealing efficiency to exclude moisture and the invasion of bacteria, that oxychloride of zinc was the best material for this purpose. If it be found necessary at any time to remove the paraffin from the canals it can be easily done, as the material remains in a plastic state.

I have been using balsam of Peru and Burgundy pitch as an adjunct in the filling and treatment of root canals. The Burgundy pitch may be dissolved in the heated paraffin and after cooling can be formed into cones suitable for inserting into the root canals. I think if these preparations were left even for a short time in very putrescent canals of long standing it would work beneficial results. In many cases where the teeth have been affected by inflammation or where there has been a fistulous opening it would not be advisable to fill the roots at once, whereas if they were filled with these preparations for a short time they would have considerable preservative and germicide action.

According to records of cases where enlarged apical openings exist, paraffin compound preparations have proven to be an ideal filling; also in cases of perforation of the roots this product has no equal, as the paraffin can be pressed into the soft tissues without any bad results.

In order to bring about the best result in the saving of teeth where the nerves are lost, thorough treatment should be made, both therapeutic and mechanical, so that the roots will be in a thorough condition before the introduction of the root filling.

After a number of years' experience in the treatment of root canals, I am led to believe that better results are obtained, in a therapeutic way, by the use of oils, such as essential oils, than resort to medicinal agents which are of an irritant nature.

PRESIDENT'S ADDRESS, NEW BRUNSWICK DENTAL ASSOCIATION
JULY, 1912

F. C. Bonnell, D.D.S., L.D.S., St. John, N.B.

It is with much pleasure that I address you as the President of this 23rd Annual Convention of the New Brunswick Dental Society.

I thank you for the honor that you have conferred upon me. Would that I had the brains of Demosthenes that I might deliver to you a message worthy of comment.

I take this opportunity of thanking the officers and committees for their endeavors in making this convention at the Celestial City the grand success which it is bound to be.

I think I can safely say that the members as a whole have never taken such an active interest in the welfare of our own little society.

What have we done in the past year to uphold the standing of the profession in New Brunswick? The Miller Memorial fund has found some sympathy. The Educational committee has made progress in some places, especially Moncton. A local society has been formed in St. John and a few, indeed only a handful, have represented their society and increased the amount of their gray matter by attending the Canadian Dental Association at Burlington, Ont.

I do not insinuate, Gentlemen, that those who did not attend are at all lacking in this respect. Probably they did not need to; but I assure you I did.

I did not intend to make this epistle a long winded yarn, but there are a few things that I would like to bring to your notice. Let us take that matter of Dental Education to the public. New Brunswick is far behind the other provinces in this respect. Let us do something not just talk, like a lot of idle gossips. Is there no way out of it? Now that local societies are, and have been formed, we have the base upon which we can stand. I would suggest that an Educational society be formed under the jurisdiction of the New Brunswick society or that a committee of live wires be appointed at this meeting to interview the proper authorities and to accomplish something worth while, so that when the time comes for our secretary to send his report to the secretary of the Canadian Oral Prophylactic society, at their next meeting, we shall have a report that will be equal to at least some of the provinces, which was not the case at Burlington this year.

At our last meeting one of our members reported that the authorities of the hospital gave poor encouragement and if they did consider it, they would make their own appointments. Is this a matter that we should quarrel about? No, indeed. I think that we are all a little selfish, but if this education is going to be beneficial to mankind let us have it by all means.

The eyes of Canada and United States are upon New Brunswick. Manufacturers are coming into our country, and we are bound to grow, and look at the poor little ones who are growing with it and growing into poor health because of the neglect of the teeth.

I hope to see the day when the society will control a free Dental Clinic in all the cities and towns of New Brunswick, and I do not think there is a man present here to-day who would not give some of his time to that clinic. Perhaps it would be a good idea to appoint a committee to look into this matter re establishing a free Clinic in cities and towns of New Brunswick. Some will make the remark, Oh, I have no time for this. Then I say that he is a very selfish man and only a drudge to his profession and looking forward to financial gain only.

I feel sure that if something like this is accomplished that it will help to place us on a standard with that of the Medical Fraternity, and when we have finished our life's work we will feel that something has been accomplished for the sake of humanity, and those who cannot afford the fees of the profession.

While we are speaking along this strain (Dental Education), I might say that we can obtain the services of Dr. Adams, from Ontario. He stated to one of our delegates at Burlington, that he would be pleased to come to New Brunswick at any time to give lectures to the public on Dental Education. The only expenses being transportation and hire of the halls or Opera house. It would be well to discuss the possibility of undertaking this venture. I might say just here that I have a mania for this Dental Education and therefore if we choose a motto for our society I would suggest, "Translate Visions into Actions."

Let us now take that problem that we all have had, viz., lady assistant, office girl or dental nurse, whatever you may call it. We have all had our trials with them and the time is coming when a lot of our difficulty will be eliminated by paying larger salaries, thus obtaining an assistant with sufficient education to anticipate the wants of the average practitioner. I speak from my own experience, which has not been nearly as great as a good many present here to-day. I have a lady assistant who keeps my books, makes appointments, takes charge of chloroform cases after extraction (she being a nurse by the way), and other things too numerous to mention. But I pay her a fairly good salary and am repaid in the end as I can devote more time to my patients and am not interrupted very often. There are a lot of us who think that a young lady at $3 per week should know everything, but they are few and far between. Dr.

Webster read a paper at Burlington recently which will be published in the Dominion Journal, although it is rather elastic in places it should be read carefully by all of us and passed over to our assistants also, as I think it will be beneficial to both.

Now let us take into consideration the welfare of our own Dental College. When I say ours, I mean it. If we do not take an interest in it who will? I think it is the duty of every man in New Brunswick and Maritime Provinces to do all that he can to help build up the Maritime Dental College at Halifax.

I would suggest that a resolution be brought before the meeting, Resolving that the N.B.D.S. would do all in its power to help build the M.D.D.C. into a big and prosperous institution. Canada for Canadians. They need all the encouragement that they can get and we are all duty bound to give it, at the same time we need not forget our own Alma Mater. Some will say that we will overcrowd the profession in the Provinces, but there is no fear of this as the West demands all they supply. A man of prominence made the statement recently that the Maritime Provinces has contributed perhaps more than any other province to the list of leaders in the profession representing Canada's great men. Therefore, let us uphold the standard of Dentistry in New Brunswick by building up our Dental College. Advance along the lines of Dental Education to the public, co-operate and work with a might for our New Brunswick Dental Society and its rights, and last, but not least, attach our ladder to the stars and live for the advancement of dentistry and all it means to humanity and ourselves.

Speaking for the interest of the society there is the question of the unregistered man who is practicing thus violating the law of the land. I might say that the question was brought up in St. John last week, and means were taken whereby these delinquents will be dealt with. However, this matter will be brought before the meeting at a future time and I hope the society will endorse the motion of Dr. Wetmore in reference to this matter, in so doing we will obtain a higher standing in the community and our members will feel that they are protected and will take an active interest in the welfare of the society. As we look around the room we will find the empty chair of one who has been with us at our annual meeting for this four or five years, a native of our own New Brunswick, one whom we highly respected morally and mentally; I refer to the late Dr. Hicks, of Boston. It was indeed a shock to us all to hear of his sudden departure for the Great Divide beyond. I have known Dr. Hicks for quite a few years, and I can assure you he leaves behind him a name untarnished. A more conscientious man has not come before the society; conscientious to himself, his patients and his fellow beings. He was one of the leaders of the profession and his death is a great loss to the society and the profession.

The lives of great men all remind us,
We can make our lives sublime,
And departing, leave behind us,
Footprints on the sands of time.

Gentlemen, I thank you for the attention you have given me and hope you will co-operate with me to make this meeting a grand success.

TECHNIQUE OF A CLINIC, DEMONSTRATING THE CONSTRUCTION OF THE DIFFERENT PARTS OF A REMOVABLE BRIDGE

By Farris S. Sawaya, D.D.S., St. John, N.B.

Read before the New Brunswick Dental Association, Fredericton, July, 1912.

Removable bridges, aside from being the most hygienic, which is in itself a great consideration, have a large field of usefulness.

Very often where a fixed bridge is impracticable, a perfectly satisfactory removable bridge may be constructed to the best advantage. Its usefulness, however, is demonstrated quite fully when such a bridge is used in restoring the lost molars and their functions in the lower jaw.

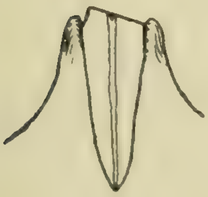
The construction of a removable bridge in the lower jaw where all the molars have been lost, consists of three parts, namely: first, abutment, which is a banded post fitting in a banded socket anchored in the root of the first bicuspid; second, abutment, which is a telescoping crown, fitting the second bicuspid. The third part is the saddle, fitting the ridge, where the molars have been lost, and holding the dummies.

Construction of the First Abutment.—Devitalize and remove the pulp of the first bicuspid, treat and fill the root canal and pulp chamber, then cut off the crown of the tooth as you would for a Richmond crown. Remove all the enamel from the walls of the root and trim all the sides sufficiently to give it a very slight sloping form. Grind the occlusal surface perfectly flat; this surface, however, should be inclined from the lingual surface toward the labial; lingually the wall of the root is about one-sixteenth of an inch above the free gum margin, and labially level with the gum margin. (See figure 1.)

Enlarge the root canal to a size of such a depth and circumference best governed by the size of the root. It is better, if possible, that the root canal should be enlarged to a circumference of a wire No. 12 or 13 standard gauge. The walls of the root canal should be parallel, or nearly so, to the walls of the second bicuspid. Take a wire measurement of the root at its largest circumference, which, if the root is perfectly prepared, ought to be about one-twentieth of an inch below the free gum margin.

Make a band of coin gold, gauge 30, by cutting it of the exact measurement as that of the wire, and making it of a trapizoid form (figure 2). Bring the ends of the band closely together, the edges being in perfect contact, and unite them by sweating and not soldering, thus obtaining a union which is very strong and does not separate under any amount of heat. Adapt the band to the root accurately, taking the greatest pains to have it go an equal distance all around under the free gum margin. Having fitted the band accurately, trim the excess of it which extends above the level of the root, making it even with the surface of the root. Remove the band and solder with 22k. a flat top to it made of coin gold, G. 30. Trim it level with the sides of the band and lay aside.

Now select a piece of iridio-platinum wire, gauge 16 or 17; this wire is the post. Take a wire measurement of it and cut a piece of 28 G. coin gold very slightly narrower than the measurement, and adapt it around to the post, making a tube out of it; you will notice the edges of this tube do not come in contact for soldering. To overcome this, slip the tube off the post and bring the edges in perfect contact by pressing on the sides of the tube, paying no attention if the tube flattens a little. Then flow a piece of 20k. solder on the outer side of the seam, thus uniting the edges together. Care must be taken not to let any solder flow inside the tube. To prevent this, however, coat the inside of the tube with a little whiting. Having soldered the tube, drive the intended post through it, thus obtaining a perfect fitting cylinder or tube for the reception of the post. If, however, after having forced the post through the tube should you find the fitting is too tight, you can slacken it by turning the post a few times between a piece of fine emery paper. The tube must be long enough to extend about an eighth of an inch above the level of the surface of the root after it has been fitted in its place in the root canal (figure 3).



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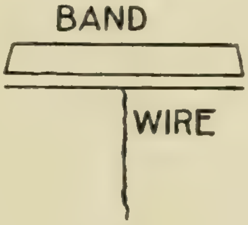

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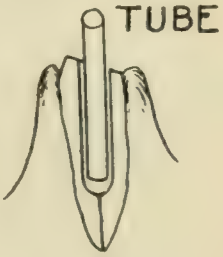

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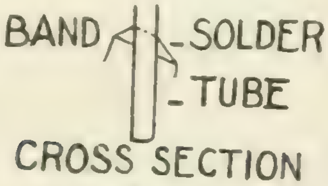
After having fitted the tube perfectly to the post, one end of it must be sealed. In order to do that, take a piece of coin gold, gauge 28, and flow 18k. solder on one side of it; then fit the tube to a wire slightly tapering so that the end of it does not reach the lower end of the tube. Now hold the plate in one hand and the wire engaging the tube, in the other, placing the free end of the tube on top of the soldered spot perpendicularly and hold them over the flame until tube and plate are united.

Blow the flame away, thus giving the soldered pieces chance to cool before removing from over the flame. Trim the sealed end of the tube and fit to the enlarged root canal sealed end downward. Remove the tube and refit the band in its place. Bore a hole through its surface parallel to the root canal. This hole must be only large enough to admit the open end of the tube and fit around it snugly. Refit the tube and band in their proper places in the root and take an impression with plaster. Run a model, invest, and solder the tube to the band with 20k. solder, the joint between the band and the tube forming a sloping surface radiating from the sides of the tube towards the periphery of the band (figure 4). Grind that part of the tube extending above the surface of the band to within one-sixteenth of an inch from the floor of the band (figure 4, dotted lines).



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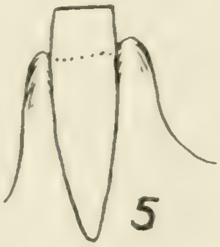
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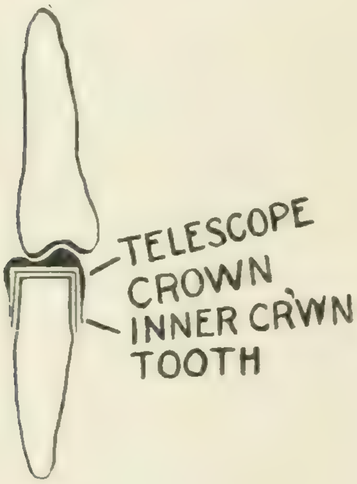

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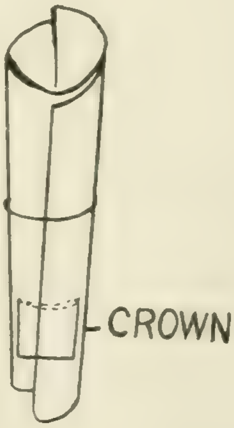

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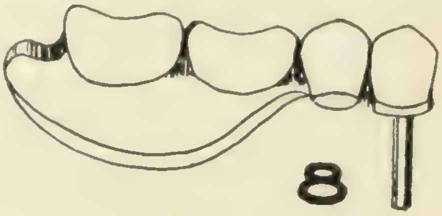
Clean well the inside of the tube and polish the band. Fit the post in its place in the tube after coating the surface and sides of the band with oil. Hold the band upside down and dip it in melted inlay wax four or five times, or as many times as it is necessary to form a telescoping band sufficiently thick enough to correspond to a plate of 26 or 27 gauge. After this is hard, remove carefully the wax and post together; invest, and cast in coin gold. After casting, clean well and refit the telescoping band with the post attached to it over the hollow tubed band that fits the root. Trim the edges so when they are fitted to the root the edge of the telescoping band is slightly above the free gum margin while the edge of the hollow tubed band is below the gum margin. Lay them aside and proceed with the second abutment.

Construction of the Second Abutment.—For the permanency of the work it is necessary to devitalize the second bicuspid. After treating and filling the root canal and cavity, trim down the walls of the tooth on all sides, forming of the crown of the tooth a very slightly conical shape, its greatest circumference being about one-twentieth of an inch below the free gum margin (figure 5, dotted line). Grind the occlusal surface perfectly flat and should be ground to such a level as to be able to fit two crowns, one within the other, on the stump of the tooth (figure 6). Take a wire measurement of the tooth at its greatest circumference and cut a piece of coin gold, gauge 30, in a trapizoid form, its longest dimension being the same as that of the wire measurement (see figure 2). Bring the two ends together, the edges being in a perfect contact, and sweat. Adapt this band below the free margin of the tooth, taking care it extends below the free gum margin equally on all sides, then cut level with the occlusal surface. Remove the band and solder a top to it made of coin gold, gauge 30. Trim and polish. Wrap around the band a piece of paper, about one and a half inch high, and hold it together with a gum Arabic or elastic band (figure 7). Pour through this paper funnel into the crown some fusible metal until the funnel is full; previous to pouring the metal, however, it is advisable to coat the inside of the band with either vaseline or oil to prevent the fusible metal from adhering to the gold and render its removal difficult. After the fusible metal is cool remove the paper and trim all the surplus metal that has escaped between the paper and band. Remove the band from the fusible metal—this is only necessary to insure an easy removal afterward—then replace it on the fusible metal and wet or oil it well all over and dip it upside down in a melted inlay wax sufficient number of times to form a telescoping barrel or crown about the thickness of a plate 26 or 27 gauge. By dipping the band in the wax the telescoping crown contours itself by force of gravity drawing the molten wax downward (remembering the band is held upside down); in this manner you will obtain a perfectly fitting and contoured crown for the band.

Remove the band and solder a top to it made of coin gold, gauge 30. telescoping crown to the tooth in the mouth. Add more wax to the occlusal surface of the crown, have the patient bite normally, remove from the mouth, carve the cusp, remove the band from the telescoping crown very carefully. Invest, and cast in Coin Gold. After the cast is finished, clean and refit on the band which is refitted on the fusible metal. It will be found a little too tight; then it will be necessary to lay the cusp of the crown on a piece of wood and strike the fusible metal cone with the hammer until the crown fits the band perfectly. Now remove the telescoping crown and trim the edge about one-sixteenth of an inch shorter than the edge of the inside band (figure 6). Fit the hollow tubed band, with its telescoping post band, to the root of the first bicuspid; fit the band with its telescoping crown to the stump of the second bicuspid. Take the bite and impression as you would for a fixed bridge, run the model and mount on articulator. Select a Goslee's first bicuspid crown the shape and shade desired, and fit it to articulate with its antagonists, having obtained the proper articulation, soften a piece of wax and lay on top of the telescoping band, oil or wet the Goslee's crown and press in the wax to its place. Adapt the wax around it and trim as desired; then join the telescoping crown firmly to the telescoping band. Remove them both from their seats (leaving the inner band and the hollow tubed band on the model), then remove the Goslee's crown from its place very carefully, invest and cast in 20k. solder. After casting you have the two telescoping crowns and bands joined firmly together with a seat for the Goslee's crown.

Replace the joined crown and band in their respective places on the articulator. Fit the Goslee's crown in its place, press a piece of thin sheet of wax firmly to the ridge of the lower jaw posterior to crowns. After obtaining a perfect adaptation, trim the surplus wax to the desired depth and shape, thus forming a saddle. Add more wax to it, articulate the first and second molars (Goslee) which have been previously oiled, and attach the saddle firmly to the crown; trim the wax around the molars, then remove them as well as the first bicuspid. Cover the saddle, the second bicuspid and the base of the first bicuspid with investing material. When it is dry remove the whole bridge from its bases, invest for the last time and cast in 18k. solder.



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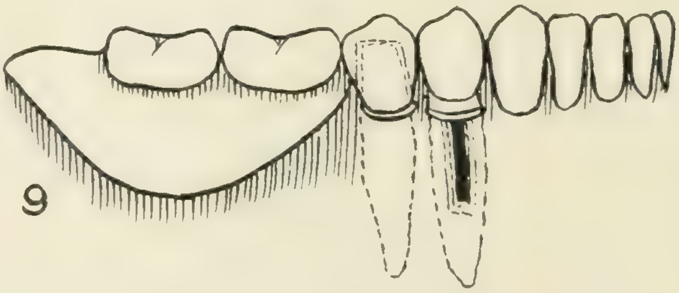

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After casting clean, trim and polish the bridge and cement the crowns in their respective places; thus you will have a removable bridge ready to be inserted in the mouth (figure 8).

Now for the final operation. Place the hollow tubed band in its place, in the bridge, under the first bicuspid, and place the band in the telescoping second bicuspid crown. Seal the edges with wax to prevent the cement from getting in between the crowns while cementing the bases to the teeth, dry the root canal and the stump well, and cement the bridge in place. Do not attempt to remove it from its bases at the same sitting, as it is liable to loosen the underneath crowns, but have the patient come in the next day. Then remove the removable portion of the bridge, clean all the cement well and put back again (figure 9).

This kind of removable bridge is very hygienic, and while it is in place in the mouth it is perfectly solid, yet it is readily removed and cleaned.

It is possible, after having made the hollow tubed band for the first bicuspid and the band crown for the second bicuspid, to cast the telescoping band and crown together with the saddle, after having obtained the articulation, all in one piece.

If desired, the post that fits the tube could be made to split. This is done by grinding two pieces of round wire on one side perfectly flat, thus forming half a circle of each. When bringing the two halves together join them at one end by flowing a little of 20k. solder.

THE PULP AND SOME SUGGESTIONS AS TO TREATMENT

By W. P. Broderick, D.D.S., L.D.S., St. John, N.B.

Read before New Brunswick Dental Association, Fredericton, N.B., July, 1912.

I have selected as the subject of my paper for this evening, "The Pulp and Some Suggestions as to Treatment."

The pulp is the foundation stone of the house of dentistry. Unless this foundation is well laid and every detail properly attended to, the superstructure must be more or less insecure.

The pulp is the point from which every thing in dentistry radiates, towards which everything is focused. The pulp is the beginning and the end of all dentistry, it is the active fundamental principle of our profession, to which everything else is subservient; for without a proper knowledge of this pulp and a scientific application of that knowledge to its treatment, our noble profession retrogrades to the ranks of a mechanical art.

Dentistry, in all its various ramifications, embraces a very large field of work, viz., symptomatology, diagnosed treatment, artificial restoration of parts, orthodontia, etc., and yet in all branches of our noble profession there is always that focal point, the pulp, that underlying fundamental principle, the pulp is there to be considered.

It is a small word, pulp, but to both patient and dentist it looms up as a thing of gigantic size and no one, either patient or dentist, realizes how much sensation is bound up in that little thread of tissue, unless he has personally experienced at some time the awful effects resulting from an abnormal condition of this pulp.

In such a paper as this, necessarily brief on account of the short time at our disposal for the reading of papers, it is not possible to go as deeply into the subject as the importance of the subject justifies, so that I will confine myself as much as possible to a few points and first just a few words to refresh our minds on what the pulp is.

We know, from our study of embryology, that man is developed from an ovum or egg. In this ovum there is a germinal spot, and when impregnation takes place and under proper conditions of incubation, the cells in the germinal spot proliferate and form two layers of cells, the epiderm or epiblast, the upper layer, and the hypoderm or hypoblast, the under layer.

Between these two layers, a third layer of cells is formed, the mesoderm or mesoblast. These constitute the blastoderm.

I will not follow the process whence all tissues of the body have their formation and development, further than to say that the enamel organs of the teeth are developed from the hypoblast layer, while the pulp is the branch supplying the upper teeth, the inferior dental artery, also a branch in the formation of the remaining tooth structure. The pulp, then, is a mass of connective tissue (as all connective tissue has its origin in the mesodermic layer) and is supplied with nerves and blood vessels, the nerves being supplied from the superior maxillary and inferior maxillary branches of the trifacial nerve, the largest of all the cranial nerves. The blood supply is derived from the branches of the internal maxillary artery, the alveolar branch supplying the upper teeth, the inferior dental artery, also a branch of the internal maxillary, supplying the inferior teeth. This, then, is the pulp, or what is so often miscalled by both dentist and patient, the nerve.

The pulp, on account of its rich blood and nerve supply, is therefore subject to inflammation, the result of irritation both from within and from without, the internal causes of irritation are pulp nodules and dentinal tumours; the external causes are caries, injuries to the tooth, abrasion and erosion, chemical reaction from sweets, excessive thermic changes, irritation from metallic fillings, pressure from fillings on thin pulp walls, septic infection, etc. These irritations have their effect on the pulp according to the intensity of their stimuli, varying from a slight hyperemia to a state of acute inflammation and death of the nerve and possibly septic infection.

I do not propose in this paper to enter the domain of diagnoses. The dentist of experience knows pretty well how to deal with a case as it presents itself.

There are two methods of pulp treatment, conservation of the pulp and devitalization. The conservative treatment of the pulp consists in removing the cause of the irritation, which is the *sine qua non* of curative treatment. Personally I am not a believer in conservative treatment when the irritation has been carried to the stage of pulp exposure, no matter how small the exposure may be. There is no doubt that the odontoblasts still retain their function of forming dentine and this is the end we aim at in our capping the pulp, but the outcome is so uncertain that I believe it wise to employ more radical means and devitalize. I take this position, not so much from a scientific standpoint as from the standpoint of giving the patient the benefit of the doubt, for it were better to end the treatment than in all probability have to only prolong it for a time, which often means the loss of the tooth.

Dr. Black says that "the deposits of secondary dentine within the pulp chamber in cases of exposed pulps which have been capped, do not permanently conserve the vitality or health of the pulp, but that they usually produce exhaustion, degeneration and finally death."

Dr. Truman says: "New formations are usually expected from capped pulps, but this expectation is rarely realized, as here the irritation is excessive and becomes a destructive force."

When it comes to devitalization, there is the method of pressure anesthesia, with cocaine, which in the case with single rooted teeth where there is a good exposure works admirably, but even at that I prefer the old method of arsenical devitalization. There are a great many who consider arsenic a very dangerous agent to use, and one which causes a great deal of pain to the patient, but it has been my experience that with care in its application and a correct diagnosis of the condition of the tooth, both these dangers are eliminated. I am a firm believer in leaving the arsenical dressing in for a week or ten days and I have never found that the pulp is devitalized in twenty-four hours, as some suggest.

The possibility of the arsenic being carried to the peri-apical tissue is the only reason suggested for its not being kept in the tooth longer. But this is to a great extent problematical and, from personal observation, I doubt if this is so.

Dr. Flagg says: "A minute portion of arsenic being introduced into the circulation of the pulp acts as a dynamic vital irritant, which causes, first, a determination of blood to the organ resulting in from fifteen to twenty minutes in uneasiness and throbbing pain; second, congestion which causes a cessation of the throbbing character of the pain; third, usually complete cessation of pain, leaving like the going down of a wave. This condition has a varied length of duration, dependent upon the extent and frequency of the previous pulp irritation, extent of pulp exposure, temperamental impressability, nervous irritability, systemic ability to resist and react vital resistance and such like considerations. The death of the pulp en masse being due to strangulation of the vessels at the apex in consequence of congestion."

Marshall, in his "Operative Dentistry," says, in referring to absorption of arsenic: "that such a condition could be possible as a result of pulp devitalization is beyond the possibilities of peradventure, while upon the other hand irritation of the apical space or the tissues beyond resulting from the application of an arsenical dressing to a vital pulp in other than deciduous teeth and in the permanent teeth of young children before the completion of calcification of the roots in which the formina are very large, could only occur if intelligently used as a rare and accidental circumstance. Flagg, by experiment, found that the quantity of arsenic absorbed was almost incomprehensively minute. He further maintains that the apical irritation which often follows upon the fourth to the seventh day after arsenical devitalization, is not due to the effects of arsenic which has passed to the apical portion of the foramen, but to inflammatory conditions extending to the apical portion of the pulp and are the last stages of the processes of devitalization as may be readily shown by microscopic examination of the apical extremity of a pulp removed at this time and which is further proved by a subsidence of the pericemental symptoms in a few hours or at most in twenty-four or forty-eight hours.

I will not go into the technique of root canal work, but before I conclude, I want to bring before the members of this association the treatment of root canals by means of sodium and potassium, suggested by Dr. M. L. Rhein. This is not in its experimental stage, but has been in use by a great many dentists since about 1893. There is probably no department of dental practice where the dentist fails so often as in root canal treatment.

Previously in this branch of our work we were actually groping in the dark. The radiograph has come to our rescue and by means of this we can get pictures of these peri-apical conditions. While we would like at all times to use every means in our power to make our work perfect, it is not always possible to go to the extent of taking views of every root, and I do not think it necessary. However, we ought to try to master a technique in canal treatment that would make our work along these lines lasting, for when the root canal is properly treated and properly filled there is not much reason why a tooth should be lost.

The principle of the sodium and potassium treatment is, in the words of Dr. Rhein, that it forms a chemical union with the organic tissue and utterly destroys every vestige of all that it unites with. I will just read a part of Dr. Rhein's paper, which is published in Dental Cosmos for September, 1911, at page 992. He says: "After all the pulp tissue possible has been removed by instrumentation, Schrier's paste of sodium and potassium is used. Small quantities of the size of a pinhead are introduced on very tough fine broaches. The paste at once forms a chemical union with the organic tissue, utterly destroying every vestige of all that it unites with. This union is accompanied by great heat, together with a hissing sound and the escape of gases as chemical union takes place. When a living pulp is extirpated it is never possible to determine at the first sitting how much pulp tissue still remains in the tooth. At the next sitting the paste is again introduced with a fine broach. At this time it will be found that by reason of the affinity of the paste for the organic tissue the broach with the paste will work its way down the finest canal until it has reached the very end. When every vestige of the organic tissue has been removed the paste will remain inert in the root canal and all sensation previously experienced will disappear.

This is an excerpt from a paper read by Dr. Rhein before the Susquehanna Dental Association of Pennsylvania, May 23rd, 1911. "By means of this agent there is a chemical action with the organic tissue of the pulp and we can all feel satisfied that if this organic tissue is thoroughly removed and the root canal kept aseptic and thoroughly filled we need fear no further trouble."

I mention this treatment, for I believe all that Dr. Rhein says, and after several years of use I look upon it to-day as the very best treatment for root canals.

I feel that I have taken up quite a lot of your valuable time, that I have taken an advantage, but I would like every man present to read Dr. Rhein's paper, and I am sure he will be well repaid.

Unfortunately the average dentist is not a man of means and leisure, and he has not the time nor ofttimes the opportunity to go into research work to any great extent. It is a bounden obligation on every dentist, however, to keep in touch with what is newest and best in the practice of his profession, to seek to know the why and the wherefore, and to apply his knowledge for the betterment of his fellow men. It is only by practising our profession along these lines that we can hope to attain that high standard which every dentist ought to strive for.

DENTAL FEES

W. H. Steeves, D.D.S., L.D.S., Fredericton, N.B.

Read before New Brunswick Dental Association, Fredericton, N.B., July, 1912.

It became a question whether or not we were to remain indifferent to the conditions prevailing, or strive to better ourselves in regard to better dental fees; it became a serious matter as everything had taken an upward tendency, and our fees remained the same year after year. Should we not consider it time, that we not only charged more for our skill, disappointments, examinations, advice, etc.? In regard to skill, it would be an incentive to each and all, to take more time on the work, especially in regard to details. Many, and no doubt, all, of us have had the experience of patients not fulfilling their engagements, not even telephoning or notifying us in any way, though some times an hour or even a day later informing us that they were sorry that they were unable to keep the appointment, etc., etc. We might have had an opportunity to fill in the hour and turned away a patient who we could have come to us at that special time, and thus lost them. Why should we not charge for that time, or rather, appointment? A great many times we are taken from the chair to examine the mouth and give our opinion in regard to the amount of work and the price for same, anywhere from ten to fifteen minutes or longer is spent on such a patient, and nine times out of ten the result is, "Well, doctor, I will think the matter over, or will call again," and likely as not never return. They get our advice, we lose the time. Why not charge for it? Would these same people go into a physician's or lawyer's office for advice and not expect to pay for it? I think not. On January 10th last the dentists of this city decided to grapple the subject of fees and met together. So general was the feeling in this matter that it was not long before we had arranged all the details, and we seemed to be so well organized, working well together, free from jealous feeling and narrow views, that it seemed almost certain that we would succeed in our undertaking. Not only have we succeeded in this matter, but also in keeping the half holiday once a week, which has been a source of pleasure and a decided benefit. In closing my remarks, I might add that by our example and results other cities could do likewise if they only tried.

KINDERGARTEN DENTISTRY IN THE OFFICE

A. R. CURRIE, D.D.S., L.D.S., WOODSTOCK, N.B.

Read before New Brunswick Dental Association, Fredericton, N.B., July, 1912.

PART I.

Mr. President, Ladies and Gentlemen,—I esteem it a great honor and pleasure to be asked to present a paper here to-day.

I regret that I am unable to prepare for you the good wholesome meal, that many of you here to-day could on this subject; yet, if by its influence, one home is enlightened, and one mother receives the message of "Kindergarten Dentistry" in the manner in which I believe it should be taught, and spares her child the agony and pain associated with neglected, deciduous teeth (to say nothing of the work that can be done along this line) I will feel that my time and trouble were not all spent in vain.

I read an article in a dental journal not long ago under the heading of "Kindergarten Dentistry." The author claimed that you must have a waiting room abundantly furnished, with dolls, toys, etc., for the amusement of the children, also must be able to relate some fairy tales to them, spend any amount of your valuable time, and wear out your patience on them. This, together with the indisputable fact that so many mothers know nothing of the care of children's teeth, prompted me to prepare this paper.

Are we to turn our office into a play-room or nursery? Are we to spend our valuable time amusing these children? Can we do a purely kindergarten business, and turn away these patients after they have so matured that we are no longer able to take them in our arms and lift them into the chair?

I say no, decidedly no. Do not turn your office into a play-room. A picture book or two may be added, but that is all that is necessary. The child comes there not to play, not to be amused, but for another far more important purpose, and if it has not already been taught this, the sooner it is done the better. No child is too young to receive the attention of a dentist, and any child after 1½ years old is ready to receive its first lesson in dentistry.

This to some may seem a little strong, but let me tell you, gentlemen, I have rendered dental services to many children at this age, and have never failed to interest them along purely dental lines. My appointments with children are, as far as possible, made so as not to keep them waiting at all.

When the child is brought into my office, the first one to approach it is my assistant. The sight of a lady approaching instead of a big, ugly looking man, as most children picture a dentist, usually has a good effect on the child.

After first obtaining its given name, I approach my new patient very slowly. One glance at its face will do much in guiding you as to what course to pursue. If a child is backward and hard to approach, one of two things must be looked for. It is either naturally bashful, or suffering from an acute attack of dental fright. If the first is in evidence, you must gradually acquaint yourself with your young antagonist—one false step, and it may cost you your prospective patient. If, in the second place, the child is really frightened of being hurt, and suffering from toothache, I find the best method is to approach it with the subject of dentistry at once. Here it requires all the skill and patience that any mortal may possess.

If the child does not care to leave its parent, allow it to rest on its mother's knee for awhile. Get the child to show you which tooth is aching, assuring it that you will not hurt. After a while, try to get the child to the chair. Tell it that you can best see the tooth that is aching, promise not to hurt, and by all means keep that promise.

If you have accomplished this much so far, the treatment now entirely depends upon the nature of the trouble and condition of the tooth. If the decay is superficial, I touch the affected parts with a little nitrate of silver. If the tooth presents a well-defined cavity, I make an application of some of the essential oils, taking care not to allow any to get upon the gums.

I never fill a cavity (even though it has never ached) at the first sitting, but always make an appointment for the work to be done later. Two or three minutes is long enough to keep the child at the first sitting, and then you will find it willing to return at a later date. This is in reference to children from about two to four years. Children from four years and upwards may present altogether different conditions from these.

In neglected mouths, you may find marked decay, presenting an exposed nerve or apical abscess. In some cases, these may be treated and filled, while in others, extraction will be advisable. If the child is very frightened and has probably suffered some from decayed teeth, you will find it a much more difficult problem. Whether you succeed or not depends upon two things—the child's home training and yourself, and both play an important part. A case like this requires great patience and tact. Promise that you will not hurt, and by all means keep that promise.

If an aching tooth exists, make an application of some of the many remedies, being careful not to allow any to pass out upon the gum, as this would burn and frighten the child. Make a future appointment, and you will find the child perfectly willing to return, whether the tooth continues to ache or not.

If an extraction is advisable, the operation should be done at once, and gentlemen, let me tell you, under this headline comes some of the most unnecessary cruel, deceitful and inhuman work ever carried on by the dental profession. Never but once have I been obliged to call upon assistance to hold the patient, and that was for the purpose of administering gas. In this particular case, the child seemed perfectly willing to take the gas, but (owing to a story that some blockhead had told her) was afraid that she would not come out of it.

You might ask me if I do not approve of extraction of deciduous teeth without an anesthetic, either locally or generally, and I would answer you, no. Never, but once, in my life have I been obliged to do an extraction of deciduous teeth without the use of an anesthetic, and this was once when the mother objected to the use of such, with the result that I lost a young patient and friend.

As a rule, I use cocaine, and I know that nine-tenths of all deciduous teeth can be extracted without the slightest pain to the patient. Some cases require the use of a general anesthetic, in which case I use somnoform.

The injection of cocaine is another thing to be considered. The cocaine can be injected in a painful or painless way. Tell the patient that you are going to rub some stuff on the gums, that will make the tooth come out with less pain, and with one finger rub a small quantity of the cocaine upon the gum before piercing it with a needle. I follow this rule in every case, and in many cases even the first prick of the needle is painless.

There is but one place to begin the injection of the cocaine, and that is by passing the needle under the free margin of the gum on the lingual side of the tooth. Proceed around the tooth, keeping within the partially cocainized area, and from now on the operation is painless. Allow the cocaine to remain a minute or two, and then remove the tooth. Never keep the forceps up your sleeve. The patient expects you to keep them there, and your act is a sure sign of deceit. Do not make an unnecessary display of any instruments. When you are ready to remove the tooth, tell the patient so, prepare them for the act. Do not deceive them. You may deceive an adult, and explain the act later, but you can never explain to a child. They know you have deceived them, and they will never forget it.

Part 2.—Kindergarten Dentistry at Home.

Little Marion, two years old, was brought to my office to have her teeth cleaned. When I approached her, she did not hesitate to tell me what she wanted. She knew why the call was made, having been told all about it by her mother. Without the slightest fear or hesitation, she allowed me to lift her into the chair, arrange the napkin, etc., and proceed with my work, which was simple yet effective. After the cleaning was completed, she bade me good-bye, told me that she would be back again, and I saw no more of her for some time, until one afternoon at a social gathering, she was there with her mother and some friends. As soon as she saw me, she made this remark, "Oh, mamma, there is Dr. Currie, he cleaned my teeth, didn't he?" Do you realize how much better that remark sounded than the following: "Oh, mamma, there is Dr. Currie, he has nice little dolls, and the funniest little teddy-bears down to his place, I ever saw, and me and him had lots of fun playing with them."

Malcolm D., age 1½ years, was brought to my office by his mother for a similar operation, which was repeated at the age of two years, when I discovered two small pin-head cavities. His mother at once told him that they must be filled, in order to keep them clean and nice, so that they would not hurt him. He knew what she meant, because she had explained this to him before, and he at once consented, and allowed me to go on with my work. He is now four years old. I have inserted in all ten fillings for him. He knows nothing about tooth-ache. He is so interested that he keeps his mother busy looking for more cavities. On one occasion I heard him tell his mother that he just loved to have teeth filled.

This is kindergarten dentistry taught at home, and by the parents. Kindergarten dentistry is not making a play-room or nursery out of your office. It is not the wasting of your valuable time to amuse children in your office. How can we, as dentists, spend our valuable time trying to teach children dentistry, when we only see them perhaps two or three times a year, and then for only two or three minutes. Is there not some other way? Yes, I believe there is.

The first lesson in kindergarten dentistry must be for the parent, governess or guardian, whichever it may be. Teach them, and show them the importance of kindergarten dentistry, and they in turn must teach the child.

Perhaps you will say, "Why, we have public school examinations and free treatment." True, we have in some of the larger places, but what about the smaller places, are they to be neglected? If so, why? Are they not deserving of the same attention? In the cities this work is being carried on, and most effectively, too; but what about the rural districts, the back places?

It reminds me of the patient who wants his anterior teeth attended to, but would not bother with the back ones, because they do not show.

Then again, children are not allowed to enter the public school until they are six or seven years of age. At this age the most important time has passed, the time for prophylaxis. Are they to be neglected up to this age? Your answer is no. Then what are we to do? Again I answer, teach the parents kindergarten dentistry. How to do this is yet to be determined, but I believe in the form of circulars, etc., distributed to their homes. Give the mothers the opportunity, and it is wonderful how quickly they will grasp at it.

Gentlemen, I venture to say that 75 per cent. of the parents in and about my home town never heard of filling children's teeth, and 99 per cent. will allow the first permanent molar to decay, thinking it a temporary tooth. How often have you heard the question, "Do you fill children's teeth?" How often have you been requested to remove a first permanent molar, by a mother ignorant of the fact that it is not a deciduous tooth? Of course we all have, and never yet have I explained the matter to a mother without a strong plea to save the tooth.

A lady came to my office, not long ago, and told me that she wanted to bring in her boy, two years old, and have his teeth cleaned, and, with a sigh, she told me she did not see how I was going to be able to do anything with him. I advised her to begin at once and prepare him for the operation. Get him interested about his teeth, tell him that he must go to the dentist and have them cleaned. I saw her the other day and she told me that she was quite surprised with her success.

Do you realize how much easier it would be for me to wait upon that patient? I have no time to amuse, play dolls with, or tell long fairy tales to, any child. Before this child enters my office, it will know just why it is coming there. It has had its first lesson in dentistry.

Surely you will bear me out when I say we must teach kindergarten dentistry to the mothers in their homes, and not to the children in our offices, where time means money.

Let us teach kindergarten dentistry in the homes of the masses and the classes, and, gentlemen, there will be no need of public school examinations. At the present day we cannot dispense with our most valuable school examinations. The two must go hand in hand, and I believe that in years to come (and not far off, I hope,) public school examinations will become a thing of the past, and will give way to its much more effective successor, Kindergarten Dentistry.

To sum up, I think I have sufficiently shown the necessity of being open-minded with the child, of not trusting to those meretricious acts which are bound to be found out, and of course, to treat our little patient with all consideration. Be kind, patient, truthful and frank.

Emphasize the absolute importance of the parents making known beforehand to their children, the necessity of caring for their teeth. It is easier to teach the mothers first, and in turn let them teach their children.

I trust, gentlemen, these few suggestions that I have made may be of some use, and may move you to consider this, "Getting into every home the message of kindergarten dentistry."

MINUTES OF THE 22ND ANNUAL MEETING OF THE NEW BRUNSWICK DENTAL ASSOCIATION FREDERICTION, JULY, 1912

St. John, New Brunswick, July 9, 1912.

The 22nd Annual Meeting of the New Brunswich Dental Society was opened in the office of the secretary, 74 King Street, St. John, this date.

The meeting was called to order at 8.30 p.m.; the president, Dr. F. C. Bonnell, in the chair.

The following were present: Dr. F. C. Bonnell, president; Dr. F. A. Godsoe, secretary; Dr. A. F. McAvenney, Dr. H. C. Wetmore, Dr. J. M. Magee, Dr. E. R. Sewell, Dr. Otto Nase, Dr. H. G. Leonard, Dr. W. P. Broderick and Dr. F. S. Sawaya, all of St. John.

Drs. Magee and McAvenney moved—

"That the minutes of the last annual meeting, as printed in the proceedings, be confirmed."—Carried.

Dr. H. C. Wetmore moved and Dr. A. F. McAvenney seconded the following motion—

"Resolved—That the Society appoint an officer to be known as a prosecutor, whose duties will be to see that all the various sections of the New Burnswick Dental Act are enforced—

Further resolved—

"That all expenses incurred in prosecuting persons who are infringing on any of the sections of the Dental Act be defrayed from the funds of the Society—

And further resolved—

"That the prosecutor be recouped for any time lost in such prosecutions at the rate of $25.00 per day."—Carried.

Moved by Dr. H. C. Wetmore and Dr. A. F. McAvenney—

"That the Registrar be the Official Prosecutor."—Carried.

On motion of Dr. McAvenney and Leonard the meeting adjourned to meet in Fredericton on the 17th inst.

(Signed) F. A. GODSOE,
Secretary.

Fredericton, Thursday, July 17, 1912.

Adjourned meeting was called to order at 11.30 o'clock in the forenoon—in the rooms of the Y.M.C.A., by the president, Dr. F. C. Bonnell.

Minutes of July 12, 1912, were read and motion of Drs. H. C. Wetmore and L. H. Somers confirmed.

His Worship, Mayor Hooper having arrived, a round of applause greeted him as he was introduced by the president in a few well chosen words. Mayor Hooper then, in kindly words, on behalf of the city of Fredericton, welcomed the visiting dentists, trusting that they would derive a great deal of pleasure from this visit and hoped that the results of their labors would tend to advance the great work toward the good of humanity which this profession was carrying on.

Dr. W. H. Steeves, on behalf of the profession in Fredericton, also tendered a sincere welcome to their visiting confreres and spoke of the plans arranged for their entertainment.

Dr. F. A. Godsoe, on behalf of the visitors, responded to the welcome, and thanked the speakers for their kindly words, and offers of hospitality, which, he said, were fully appreciated, and would be taken advantage of by their guests.

The president then read his address, which on motion of Drs. Magee and Murray, was referred to a committee, consisting of Drs. Thompson, Magee and Steeves, to consider and report back at this meeting. The secretary read his report, which, on motion of Drs. Wetmore and Thomson, was laid on the table.

Dr. Somers, Chairman of the Educational Committee, submitted the following report:—

"The Committee on Dental Instruction for the Schools of the Province of New Brunswick appointed at the last meeting of this Association, beg to submit the following report: As a campaign of education and treatment had been proposed for the schools of Moncton, the Committee after consultation with the trustees, met the School Board at a special meeting. Following the explanation of our ideas the Board resolved to co-operate in the proposed philanthropic work; but before any preparatory work was done by the local Association, the President received notice from the Secretary of Schools, that Dr. Carter, Chief Superintendent of Education, had before the Legislature a 'Medical Inspection Bill' for the whole Province, and advising that the matter be left in abeyance as the passing of this Act would empower the trustees to work with the Association.

The Chairman of your Committee received some valuable London Charts kindly donated by C. S. Ash & Co., also copies of the Doherty School Exhibit from the Canadian Oral Prophylactic Association.

A manuscript has been prepared by the members of the Westmorland County Dental Association, in which it is proposed that the Westmorland

School work be organized and done under the supervision of the Association.

It is extremely doubtful if any body of learned men, such as we find in the dental profession, would remain passive and meekly endure the stigma of permanent loss of structure of energy and life through lack of correction and treatment of microbic or pathological conditions, existing probably to as large an extent as 75 per cent. to 90 per cent. of the school children of this Province.

We may not have warmed up to this subject, and we may be lymphatic, but we are at least humane.

Your Committee would recommend that the Province be divided into ridings and that local Dental Associations be organized in specified districts. Would also suggest that dental charts and literature be passed from one organization to another, and that the presidents of the local societies be appointed, if possible, at this meeting; and that an aggressive, philanthropic movement be thus started through the whole Province at the same time. It is suggested that imperative cases be relieved at once by extraction, and that tabulated statistics of the condition of the school children's teeth be filed with the school boards in the various local districts, and duplicate of same to be sent to the Secretary of this Association; and that after receiving this information the school board be requested to make provision for the further carrying on of the work.

That the dental fraternity of the Province, as a body of experts, so inform the public mind and the State, that every child will be regarded as a valuable asset to the state, in proportion as it has health, strength and life-giving qualities, and also that every child will be regarded as a menace to the state in proportion to its possibilities to absorb, retain and spread infectious and contagious diseases.

Faithfully submitted,
(Signed) L. H. SOMERS,
Chairman of Committee.

Harry S. Thomson,
C. A. Murray.

On motion the report was received, and placed before the Society for discussion.

Drs. Broderick, Somers, Magee, Steeves, and Barbour discussed the matter of the report and resulted in Dr. Barbour moving the following resolution, which being seconded by Dr. Broderick, was placed before the meeting and carried:

Resolved—"That this Society approve of the formation of existing local dental societies and recommend that further organization be formed to cover other parts of the Province.

"That educational work in these sections should be encouraged and that these be recognized as committees of the N. B. Society for education work of such divisions. It is suggested that divisions be made as follows: That King's Co. be added to St. John. That Westmoreland, York, and Charlotte counties have their own societies, and combinations be made of Carleton, Victoria and Madawaska and also of Northumberland, Restigouche and Gloucester. The Audit Committee submitted the following report to the New Brunswick Dental Society:—

We, the undersigned, have examined the books and accounts of the Society and found them correct.

(Signed) W. P. BONNELL, Chairman.
OTTO NASE.

St. John, N.B., July 17th, 1912.

On motion of Drs. Wetmore and Snow the report was received and ordered to be entered on the minutes.

On motion the report of the secretary was ordered to be taken from the table and entered on the minutes.

Saint John, N.B., July 9, 1912.

To the President, Officers and Members of the N.B.D. Society:

Gentlemen,—I beg to submit the following from the office of the secretary:—

The regular routine work incident to the secretary's office has been attended to during the past year. One event interesting to the society has occurred during the year.

The term of the members of the Council appointed by the Government expired in March last and instead of making new appointments the Government passed a bill through the Legislature at the last session, taking the power of appointment from the Government and putting it in the hands of the New Brunswick Dental Society; thereby vesting in the Society the entire appointment of the members of the Council of Dental Surgeons of New Brunswick. It will therefore be necessary for the Society at this meeting to elect three (3) members to the Council for a term of four (4) years.

The members whose term expired are: Dr. A. F. McAvenney, Saint John, N.B.; Dr. C. A. Murray, Moncton, N.B.; Dr. G. J. Sproul, Chatham, N.B.

The monies received and distributed during the year by the Society is as follows:—

Amount received for dues	$132.00	
Amount received from C.D.S. of N.B. ...	8.80	
Total		$140.80
Amount paid out as per vouchers		140.80

The Council reports that Mr. G. C. Dewar has been registered as a student; and that Dr. H. B. Wood, of Moncton appeared before the examining board for the final examination in June last, and passed the board.

Dr. Broderick reported progress for the committee on orthodontia. Dr. Magee as representative to the Dom. Dental Council submitted the following report which was on motion received and ordered to be placed on the minutes.

To the President and Members of the New Brunswick Dental Society:

Gentlemen,—Your representative on the Dominion Dental Council hereby submits his report:

During the past two years nothing of vital importance to New Brunswick has transpired, though three matters of deep interest have been prominently in the minds of the Council's members, and of these I desire to make mention.

As you are aware, it was my privilege to sit as President of the Council, and in exercising the duties of that office, my report referred to two of these matters while the third was discussed very fully at our meeting in Burlington in June last. A full report of our deliberations will appear in THE DOMINION DENTAL JOURNAL.

The first matter was the temporary withdrawal of Alberta from membership in the Council. This we considered an ill-advised step, and as results have shown, was an entirely unnecessary one. The Alberta Board was stampeded into taking the action it did by two members whose presumptuous zeal proved their own undoing, for when the Alberta Association realized the full significance of its position and the effect that action had on the Council, it voiced its emphatic displeasure by sending a new representative to the Council.

The second matter was that of bringing into the Council the two provinces still holding aloof. I am glad to report here that the prospects of Quebec becoming affiliated before the year is out are very bright, and progress regarding British Columbia is very promising. I assumed the responsibility of corresponding with the powers that be in British Columbia, to the end that Dental Confederation might take equal pace with medical confederation in this Dominion of Canada, and at our biennial meeting, I was requested to continue my efforts toward the happy consummation of that idea.

The third matter calls for an expression of opinion from this association. The representative from the Ontario Board, inspired by members of the R.C.D.S. of Ontario on behalf of a large number of Ontario students, who were desirous of taking the Dominion Dental Council examinations, but who under existing requirements are disqualified, moved the adoption of a resolution to the effect that the requirements be amended. The motion was not seconded and therefore it died, but as the question was one which affected the interests of all the agreeing provinces (and in fact, too would be noted by the two provincs not yet agreeing, but which we are desirous of having union with), it was decided that each provincial Association should express either its approval of the motion or its disapproval of the motion or the majority of the Provincial Boards require University matriculation (or in some instances such as our own, University matriculation or its equivalent) for the preliminary educational qualifications, and the Dominion Dental Council demands *at least* matriculation into an institution recognized by the General Medical Council of Great Britain. This latter examination specifies certain subjects which are not identical with those enumerated in the Ontario requirements, but the Ontario college claims that the subjects demanded by it are of equally high value from an educational point of view and of infinitely greater practical value to the dental student. I leave the decision of this question with you, and ask that the Secretary Treasurer of the Dominion Dental Council, be informed of your conclusion.

I have also to report that our Registrar's certificate will be accepted by the D.D.C., as an evidence of compliance with the conditions for preliminary qualifications in cases where candidates for the D.D.C. certificates are registered in New Brunswick with the qualifications now demanded by this Provincial Board of Registration, thus obviating the necessity of candidates applying to the University of New Brunswick for verification of their credentials.

(Signed) JAS. M. MAGEE,
Representative from New Brunswick
to the Dominion Dental Council.

Dr. Magee brought before the meeting the request of the Dom. Dental Council for its action in re the preliminary qualifications demanded by the said Council after the subject had been discussed by Drs. Magee, Somers, and C. A. Murray. Dr. Somers movd and Dr. Murray seconded the following resolution, which was carried:—

"The New Brunswick Dental Society recommends and hereby places on record for the guidance of its representative to the Dominion Dental Council that the present standard of preliminary qualification demanded by the Dominion Dental Council be sustained and that it expresses the opinion that University Matriculation should be demanded." On motion of Dr. Broderick and F. A. Taylor, the secretary was instructed to convey to Dr. O. B. Price the congratulations on his being selected to Parliament and a minute be entered on the records that he is the first dentist returned to the New Brunswick Legislature. In accordance with the above the following was sent Dr. O. B. Price, M.P.P., at Moncton:—

July 21st, 1912.

"O. B. Price, Esq., D.D.S., M.P.P.,
Moncton, N.B.

"Dear Sir,—The New Brunswick Dental Society in annual session at Fredericton, N.B., on the 17th, inst. passed the following resolution, a copy of which I was directed to forward to you:

"Resolved—That this Society in Annual Session at Fredericton, N.B., tenders its sincere congratulations to Dr. O. B. Price, M.P.P., Moncton, N.B., on his being elected to the Legislative Assembly of the Province of New Brunswick, and note the fact that he is the first member of the dental profession who has been honored with a seat in the Legislature of this Province."

"Further Resolved—That a minute of the Society's appreciation be be entered on the records of the society; and that a copy of this resolution be sent to Dr. O. B. Price by the secretary."

The committee on the President's address reported as follows: "Your committee appointed to report on the President's address, submit the following:—

"We quite concur in the President's view that the Canadian Dental Association deserves the attendance of every member of the New Brunswick Dental Society.

We place ourselves on record as an association to do all in our power to further the interests of the Maritime Dental College and appreciate the efforts they have made to bring it to its present standard of excellence. Dental education was fully covered by resolution passed this morning.

The suggestion in regard to Dr. Evan's lectures is a matter that should be taken up and dealt with, and we recommend the adoption of a resolution of regret that Dr. Hick's untimely death has robbed the profession of one of its most promising members.

(Sgd.) HARRY S. THOMSON,
JAS. M. MAGEE,
W. H. STEEVES.

On motion the report was received and ordered to be laid on the table.

Dr. H. S. Thomson moved, seconded by Dr. C. A. Murray, the following resolution, which was carried:

"Resolved—That the New Brunswick Dental Society has learned with deep regret of the untimely death of Dr. F. B. Hicks, of Brookline, Mass., and hereby desires to express its sorrow that the profession of dentistry should have been deprived of his talents and skill and hereby records its recognition of his worth as an honored and esteemed member of the profession."

Moved by Drs. Murray and Day that the Society adjourn until 2 o'clock in the afternoon, carried.

Fredericton, July 17, 1912.

Adjourned meeting called to order at 2.30 p.m., with the President, Mr. F. C. Bonnell, in the chair.

It was moved by Mr. Murray and seconded by Dr. Magee that the President's address be taken up section by section; motion carried.

First section referred to the Maritime Dental College.

Dr. Magee spoke in regard to same, emphasizing the opportunity it offered for learning, its museum and chance for progressive work; he advised that any who happened to be in Halifax should go through the college and felt that the work should be encouraged by all the members as its teaching was in line with the standards of the Dominion Dental Council.

Dr. C. A. Murray spoke very highly of this college, and said that we should try to induce young men to attend this college; he said that the course in the United States was three years, while that in Halifax was four, and this was probably why many attended the former colleges, but they should take into consideration the greater advantages to be derived, and he felt assured that they would realize this fact in the near future as we had just as good a college as could be found in the United States.

Section Two. The coming of Dr. Adams to New Brunswick to lecture was then discussed.

Dr. Barbour spoke of Dr. Adams, saying that he had offered to come and lecture in the towns; he had done good work in Toronto, and for a number of years had supported an institution for the care of teeth, and it was expected that he would have presented same to the city of Toronto, but owing to some trouble in regard to taxes this did not take place. Dr. Barbour said the man was sincere, and his sole means of support during his lectures were pamphlets which sold for 25c., and under.

A paper entitled "Dental Fees" was then read by Dr. W. H. Steeves, of Fredericton, which was discussed by Drs. Thomson and Murray.

Mr. Thomson said that in regard to the prices charged, they had in Moncton a minimum price agreed upon by all dentists, and that a patient knew when he came in the office what he would be charged, but that he did not believe in a dentist lowering his price because some other man would do work cheaper. In regard to charging for examination, it had been his own experience that most of the patients who came for examination came afterwards and had work done. He did not agree with the plan that they were trying to work in Fredericton of charging for examination, as he said it seemed like a lack of faith in patients. He also said that they had, on the bottom of their cards words to the effect that all appointments made and not kept, unless telephoned about, were charged for, and very little of this occurred. He approved heartily of the weekly half-holiday.

Dr. Murray was very much inpressed with Dr. Thomson's discussion. He spoke in regard to committee organization.

Dr. Broderick and Dr. Somers were called upon to discuss the paper, but had only a few words to say, also Dr. J. W. Moore. This closed the discussion and the paper was passed.

Dr. A. T. McMurray, for the Entertainment Committee, reported that Friday afternoon had been set apart for relaxation, and submitted the programme.

A paper by Dr. A. R. Currie, of Woodstock, on "Kindergarten Dentistry" was then read. Discussed by Drs. H. B. Nase and Dr. J. W. Moore.

Dr. H. B. Nase said he agreed with everything that Dr. Currie had said, and that he believed the place to start dentistry with children was at home, which would make it easier for the dentists as well as themselves.

Dr. J. W. Moore, said he had listened with great pleasure to the remarks of Dr. Nase, and the paper read by Dr. Currie and he thought children's teeth should be looked after in order to give a perfect tooth to the adult. He also believed in making short appointments for children; he believed in educating the mothers in the care of their children's teeth, and said he thought he had been able to do some good work for the children, being encouraged in the care of their teeth and to come to dentists by their parents explaining to them why they should take care of their teeth.

Dr. Broderick then read a paper, entitled, "Dental Pulp."

Dr. Wetmore discussed the above paper at length, followed by a short discussion by Dr. Godsoe.

Dr. Magee was then called upon, as were also Drs. Barbour, W. P. Bonnell, H. C. Wetmore and L. Somers, and all spoke briefly, complimenting the essayist on the excellence and completeness of his paper.

Place of next meeting was then called for.

The secretary read from the minutes of the meeting of 1908 in regard to holding the meeting at St. John every other year. Dr. Murray and Dr. Bonnell thinking that it was according to the by-laws that the meeting should be held there every other year.

Dr. Thomson extended an invitation to the Society to meet in Moncton in 1913. Dr. Currie also extended an invitation for the meeting to be held in Woodstock in 1913.

It was moved by Dr. Broderick and seconded by Dr. Sproule that the next meeting be held in Moncton, and carried.

Dr. Broderick spoke in regard to a coalition meeting between Nova Scotia and New Brunswick, saying that it was a little late to discuss the matter with Nova Scotia this year, but he moved that the secretary be given power to arrange with Nova Scotia Dental Society for a joint meeting, (inviting the P.E. Island Society, too) the following year, 1913, in Moncton, or any other place which would be more convenient. Dr. C. A. Murray seconded this motion. Dr. Murray saying that if Nova Scotia does not agree to Moncton that the place of meeting could be changed.

DR. MAGEE: The members of this organization should take some interest in the following:—

He spoke of a Brody Memorial Fund, for the purpose of putting a life-sized picture of Dr. Brody at the Royal College, but failed to interest his hearers, and nothing was subscribed. He also spoke along the same line in regard to Dr. Beers, who was editor of THE DOMINION DENTAL JOURNAL, but nothing was done.

It was moved by Dr. J. W. Moore and seconded by Dr. Magee that they proceed to the election of officers.

Doctors, Sproule, Sawaya, and Dr. H. W. Murray were appointed as scrutineers.

Dr. Barbour nominated Dr. H. S. Thomson, of Moncton, for the office of president. No other nominations being offered, the scrutineers cast a ballot for Dr. Thomson and he was declared elected president for the ensuing year.

Dr. Broderick nominated Dr. W. P. Bonnell for the office of vice-president, and Dr. Murray nominated Dr. Currie for the same office, the members then cast their ballots for vice president, and the scrutineers, after counting the same, announced that Dr. Currie had been elected, whereupon the president declared Dr. Currie as having been elected vice president.

Dr. Broderick nominated Dr. F. A. Godsoe for the office of secretary, no other nominations offering, the ballot was cast and he was declared elected to the office of secretary.

Short speeches were then made by Drs. Thomson, Currie and Godsoe.

The members then proceeded to the election of three members to the Council of Dental Surgeons. Dr. C. A. Murray nominated Dr. Broderick, Dr. Magee nominated Dr. Moore, and Dr. Thomson nominated Dr. Steeves. Nomination closed. The scrutineers then cast a ballot for Doctors Broderick, Moore and Steeves, and the president declared them elected.

It was moved by Doctor Burden and seconded by Dr. Murray that the meeting be adjourned until eight o'clock in the evening. Carried.

July 17, 1912.

Adjourned meeting called to order at 8.30 p.m. by the president, Dr. F. C. Bonnell, who, in a few brief words thanked the members for their courtesy during his term of office and eulogized the new president, Dr. H. S. Thomson, of Moncton, who then assumed the chair amid applause. The chairman then announced a paper by Dr. C. A. Murray, entitled "Business Possibilities for a Dentist." Discussed by Dr. Somers, Dr. Snow, Dr. Leighton, Dr. Burden, Dr. Hagermans, Dr. McMurray. The Secretary read a telegram from Dr. B. F. Reade, regretting his inability to be present.

Dr. F. S. Belyea, of Providence, was then introduced by the President, who read a paper on "Facial Expression," illustrating the same by charts, models and black-board drawings.

This subject was discussed by Drs. Burden, Magee and McMurray.

On motion of Dr. Godsoe, a vote of thanks was tendered Dr. Belyea for his kindness. Dr. Belyea replied in a very happy vein, acknowledging his appreciation of the courtesy extended to him.

On motion the meeting adjourned.

(Sgd.) F. A. Godsoe, Secretary Treasurer.

Dominion Dental Journal

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VOL. XXV. TORONTO, FEBRUARY 15, 1913. No. 2

THE FOUNDER OF THE DOMINION DENTAL JOURNAL

We publish in this issue a picture of the late William Beattie Nesbitt, B.A., M.D., founder of the Dominion Dental Journal. The first Dental Journal published in Canada was published and edited by the late W. George Beers, Montreal, in 1867. This publication ran through three volumes and failed financially. In 1889 Dr. Nesbitt, being then the publisher and editor of the Dominion Medical Monthly, published the Dominion Dental Journal as a quarterly, and later a bi-monthly, and then as a monthly. For over twenty years the Journal was successfully published by its versatile and energetic founder.

For a number of years Dr. Nesbitt managed the C. H. Hubbard dental supply business. It was during this time that the Doctor became interested in many financial enterprises. The Clark Dental Manufacturing Company and the Bowden Machine Company were two companies interested in the manufacture of dental chairs and furniture. Dr. Nesbitt had a splendidly equipped laboratory at his home, 71 Grosvenor street, where much of his time was spent in original research work and perfecting manufacturing processes. A complete line of toilet preparations was fully prepared for the market, but owing to the stress of other business was never sent out. Among these were tooth powders, tooth pastes and mouth washes. His was the first tooth paste made with a glycerine base. He

THE LATE DR. W. BEATTIE NESBITT.

fully realized that a tooth paste with a sugar or honey base was bad for the teeth.

The dental profession of Canada owes much to the energy and ability of Dr. Nesbitt. He founded and maintained a dental journal in Canada when others had failed. He infused progress into the dental manufacturing and supply business and devised many new methods of manufacture. He gave both time and financial assistance to the organization of the Canadian Dental Association. He personally assisted many young men during the early years of their practice. He encouraged sports at the Royal College of Dental Surgeons by giving a cup to be competed for annually between the different years. Hockey has been so encouraged that the R.C.D.S. has won the university championship very frequently.

As editor of the Dominion Dental Journal during ten years of the late Dr. Nesbitt's ownership of it, we are in a position to know of many acts of generosity and encouragement to those associated with him. He was an optimist of the rosiest hue. His interest in the dental profession and the Dominion Dental Journal was shown in his last request in giving up its publication, when he said: "I hope you will always keep my name on the subscription list so I can keep in touch with Canadian dentistry and the Journal." In the death of William Beattie Nesbitt, B.A., M.D., the dental profession in Canada and the Dominion Dental Journal have lost a staunch friend.

TESTIMONIAL BANQUET TO DR. BROPHY

The testimonial banquet tendered Dr. Brophy at the La Salle Hotel, Chicago, was truly Chicagoan. There is a spirit of bigness and perfection of detail about the doings of Chicago dentists which has gone far towards making the Middle West the centre of dental education in America. The Brophy banquet was magnificently arranged and carried out. It was a great tribute to a great man. Fully a thousand dentists met to do honor to Dr. Brophy that evening. The speeches, presentations and messages of good will lasted well on to the morning. No doubt a full report of these will appear in print later on. A report of such a gathering and a full report of the work and achievements of Dr. Brophy should be in the hands of every young man in dentistry as a stimulus to better doing.

The profession of Canada was well represented, from Toronto, Halifax and Winnipeg. Dr. George Bush, Winnipeg, president of the Canadian Dental Association, officially represented Canada. In the absence of a representative from Italy, Dr. A. W. Thornton made the presentation for that country in a very few happy words.

In closing, Dr. Brophy referred to his early work in oral surgery and the value of the work of those in the profession who had gone before.

MEETING OF THE TEXAS STATE DENTAL ASSOCIATION, MAY 15, 16, AND 17, 1913.

The thirty-third annual meeting of the Texas State Dental Association will be held at Temple, Tex., May 15, 16 and 17, 1913. The clinics will be in charge of Dr. J. O. Hall, Waco, Tex., who will furnish any information relative to same. Exhibitors desiring space will please address Dr. J. M. Murphy, Temple, Tex. All ethical members of the profession are cordially invited to attend the meeting. Any other information will be cheerfully furnished by the secretary.

GUY MORGAN, Pres., Paris, Tex.
J. G. FIFE, Sec'y, Dallas, Tex.

The "Winnipeg Tribune" contains a well written article on the effects of manufacture of mouth preparations to keep pace with the changing views of the dental profession. The latest idea is to make mouth preparations rather acid than alkaline.

The dentists of London. Ont., will give a weekly free dental service in connection with the general hospital.

DENTAL PRACTICE FOR SALE in Fergus, Ontario; has been a dental office for thirty-nine years. Ill health cause for selling; for particulars, address Dr. G. A. Reid, Box 392, Fergus, Ont.

I WISH TO BUY Dental Practice in a good town or city. Will pay cash. Please state particulars in regard to town, location of office, receipts, equipment. Prefer place on two railways. Box 102, Dominion Dental Journal. (23).

PROFESSORSHIPS VACANT

Applications, with testimonials, etc., will be received by the undersigned until April 19, 1913, for the position of Professor of Crown and Bridge Work; also for the position of Professor of Dental Materia Medica and Pharmacology, in the School of Dentistry of the Royal College of Dental Surgeons of Ontario. Duties to commence October 1, 1913.

J. B. WILLMOTT, Secretary R. C. D. S.
96 College Street, Toronto

Dominion
Dental Journal

VOL. XXV. TORONTO, MARCH 15, 1913. No. 3.

Original Communications

AN OUTLINE OF DR. W. G. H. LOGAN'S ILLUSTRATED ADDRESS ON THE TREATMENT OF CARIES, NECROSIS, AND FRACTURE OF THE JAW

Delivered at the Annual Convention of the Canadian and Ontario Dental Society, Hamilton, June, 1912.

Dr. Logan opened his lecture with a discussion of the etiology, diagnosis and treatment of active hyperemia of the dental pulp, partial pulpitis, outlining the diagnostic symptoms that indicate the advisability of beginning the course of treatment for the conservation of the vitality of the pulp, and those symptoms that indicate the application of such remedies as are to terminate with its destruction and removal.

Total non-septic pulpitis and septic pulpitis of the ulcerative and abscess forms was then taken up and a differentiation of the etiology, pathology, and treatment between septic pulpitis and putrescence of the pulp clearly outlined.

Acute and chronic dento-alveolar abscess was briefly covered and an outline given as to when it was advisable to resort to root amputation for control of the chronic conditions found in the periapical field.

The possibility of cyst formations about root ends, as result of the chronic irritation maintained by these infective processes, in this area was illustrated with X ray slides from practical cases.

Gave the etiologic differences and pathologic findings for differential diagnosis and treatment in cases of caries and necrosis.

Fractures of the mandible, their diagnosis and the indication for the employment of the swaged aluminum splint to be cemented to all teeth remaining in the short and long fragments.

Covered methods of wiring the teeth of the lower jaw to those of the upper.

The indications and technic for wiring through the body of the bone and the employment of the Lane Plate for reduction of fractures of the mandible was covered in detail and illustrated by X ray slides of practical cases.

In closing the discussion he covered the treatment of advanced chronic cases of infections of the Antrum of Highmore.

DISCUSSION.

DR. A. E. WEBSTER: Mr. President, Ladies and Gentlemen: Before taking up the discussion of the paper, I wish to congratulate this association on having heard such an address on this particular subject. I did not know seriously until yesterday that I had to discuss this subject; in fact I did not know what the subject was to be. I have made some notes as the speaker went along which I may amplify, or perhaps suggest something that the essayist left out. To begin with, there are certain pains which occur about the face which are not well localized and usually occur from a vital pulp. These pains, if studied carefully, can be distinguished from the pains of infection. It takes some careful observation of the clinical history of such cases to make the differential diagnosis, but many of you will listen to what a patient has to say with reference to the pain, and you can make the diagnosis with assurance that that is a pain from a vital pulp. I believe the suggestion of the essayist that where a pain has lasted from a pulp which is not exposed for more than one hour that the pulp ought not to be lost if there is a known cause of irritation, and when that known cause of irritation is removed the pain subsides. That is vastly different from what we sometimes have been taught. Again, we may lay it down pretty nearly as a sound rule to follow that a pulp where the pain is increased with warmth or heat, and decreased or ceases with cold, that such a pulp is in passive hyperemia or is inflamed and should be destroyed. I believe it is useless to do any treating with a pulp when the pain is relieved by applications of cold. Dr. Logan suggested that it is not always wise to undertake to devitalize a pulp which has pained such as he described after it has been punctured and there is a. hemorrhage. I see no good reason for waiting until a subsequent sitting before undertaking devitalization if it is intended to use arsenic. I would not undertake to do it with phenyl or cocaine. I would undertake to devitalize with arsenic, although hyperemia may be present, as it will relieve the pressure on the nerve. It is possible for the arsenic to have some poisonous effect upon the pulp. It will not devitalize the pulp as it would if it had been an ordinary vital pulp. In fact we may have to leave it there for a week before we can do anything.

The sealing of dressings is very important. If you wish to follow the conservative method with the pulp I believe it is always wise to do the operation by removing the decalcified tissue and seal the dressing with cement, especially if there is any reason to believe that the occlusion or mastication may move that dressing.

Dr. Logan spoke of the difficulty of getting a clear differentiation between suppuration and gangrene, and abscess of the pulp. I prefer to use the term abscess of the pulp to suppuration of the pulp, because it makes it clear and distinct, and separate from gangrene of the pulp, or moist gangrene of the pulp, or you can make it distinct from putrescent pulp. The abscess of the pulp may be located just at the point of infection or the point of decay. The abscess of the pulp may be even close to the apex of that pulp, and those are difficult to treat, but occasionally you will find such. When an abscess of the pulp appears and you have made a puncture pus comes down, the pus is followed by blood, and you see the pulsations of the heart. If a small quantity of pus comes down then you believe that there is an abscess of the pulp, but if a large amount of pus should come down more than could be contained in the pulp chamber and canal itself, then you must believe that there is an alveolar abscess. The treatment may be slightly different, but if you are perfectly satisfied that this is an abscess of the pulp and blood has followed soon after the small amount of pus which has come, then I agree with the essayist that that is no place for formaldehyd and tricresol. You may have lots of pain there if you use that treatment. You had better do some palliative treatment before you undertake devitalization. There is often a mistake made in pressure anesthesia—a sort of half dead case—where there is an abscess, and then following a little blood, having the apex of that pulp alive, and to undertake to press the cocaine, to desensitize that and remove it, is dangerous. You may have a beautiful dental alveolar abscess if that treatment is undertaken. If you make the pressure anesthesia with phenol you will have at least the opportunity of destroying the infection that has been present.

Dr. Logan said a great deal about amputation. I have amputated the roots of molars and found the crown tip over, and I have amputated buccal roots; but where the part that is supported by the roots is removed then the chances of tipping are not nearly so great. I have entirely ceased to cut lingual roots off upper first molars and I am glad of the suggestion of cutting the tooth through and using only part of the crown. The lower molars are difficult to handle in connection with amputation. In fact the lower incisors are doubtful, I have amputated a few and they do not yield with that same success that we find in the uppers. I remember having amputated the distal root of a lower second molar for a young physician and he still has the alveolar abscess because we cannot agree on an appointment to have that tooth cut in two and the root removed. There is a feature that I have noticed very often and I am very pleased that Dr. Logan has brought it out that what we commonly have termed a blind abscess, if continued over a long period of time, will eventually become a cyst. Many times you have seen that which you thought was perhaps an alveolar abscess, although it was not in an acute stage, and when you cut into it you found that amber coloured fluid coming from it, or you have found that amber coloured fluid coming down from the alveolar canal. Now, the treatment of that by the ordinary methods is quite useless. You might just as well make up your mind at once that more radical treatment must be initiated there or success will not come. I have had several of those cases, and they are most annoying.

I desire just to make a couple of remarks in connection with fractures. The discussion on the question of fractures was excellent and very valuable for this association, and it is very fortunate indeed, I think, that the committee thought it wise to have this subject discussed. There is only one objection that I see to the aluminum splint, and that is articulation. Dr. Logan suggested a way to get out of that difficulty. I find it better mostly to make the splint of vulcanite, and then you can make the articulation to suit and have an even bite all the way round. In fact you may put it up in the anatomical articulator and get an absolute articulation of the upper tooth against this vulcanite splint, and when the time comes to hold the lower jaw against the splint that splint is set into the proper cusps of the upper teeth, and you may apply force without the possibility of getting it slightly out of line. I had the misfortune once of losing a patient by wiring the lower teeth to the upper from regular inspiration pneumonia. A patient whose lower teeth are wired to the upper has a very septic mouth even if you do your best. It seems very difficult to keep it clean. This man, who died from this form of pneumonia, was of course the regular broken jawed man, the fellow who gets drunk and in a fight has his jaw broken. He was taken to the hospital intoxicated and blubbering around while we were trying to get him sobered up, and of course his mouth was unclean, and he inhaled that stuff from his mouth and died of pneumonia in about four days. I have had the history of two or three cases of inspiration pneumonia from just a bandage round the head. I had in my practice during the last year one fracture that was very interesting, and illustrates the difficulties that Dr. Logan pointed out in connection with wiring. There was a fracture between the first and second molar, a fracture just across the ramus between the articulation and the angle on that one side, and on the opposite side the alveolar process was all broken in and the teeth loosened. We were not able to do anything for this man until four weeks had expired after the accident because of the fracture of the higher bone. He had to have a tube placed in his throat so that he could breathe, on account of the swelling, so that it was a very unfavorable case to do anything with. We have a very poor articulation as a result. There was loss of bone as Dr. Logan has suggested to you, and we have now a large piece of bone lost from the region of the second molar, and the third molar has dipped into the mouth. In fact it is just about cross ways, so he is not in a very happy condition yet. It is especially unfortunate because of the fact that he made his living as a vocalist.

DR. OLIVER LESLIE: There was one point that I wished to ask Dr.

Logan about and that was the treatment of a discharging abscess. I wanted to ask him his opinion about using formaldehyd and carbolic acid in equal parts, mixed with zinc oxide, and push that up into the root canal. Dr. Logan spoke about forcing the product up around the area that was infected. With a discharging abscess I have never been afraid of forcing formaldehyd and carbolic acid in equal parts, and making a paste of zinc oxide. In fact I always like to see the paste on the second or third day oozing out of the sinus.

Dr. Logan: I would say the case where the lingual was cut in two, and we thought we would have to take the three teeth out, that case was treated as Dr. Leslie has outlined. About two months before I had to do the work, and the real reason that it was re-established was because of that character of irritation. The special reason was, though, it was a long way from the lingual out through between the two buccals of that second molar. If it had that straight line it wouldn't have caused that irritation.

Dr. Oliver Leslie: Then there was another part of the paper as to the technique of actually amputating the root, especially one you had treated, one where there was a discharging abscess, and not showing any signs of protruding. Now, I have watched the amputation of roots where the operator plunged through the soft tissue and bone and cut back the end of the root.

Now, to any one who has never done anything like that it seems a rather blind way. I rather like the method of probing the sinus, finding out exactly the direction of it and making an incision. Cut out a small square of the bone and expose the root so you can see it properly.

When asked to take part in the discussion of the very important and instructive paper we have listened to by Dr. Logan I felt at the very outset, that of all men, I had as little right in the way of experience and ability as anyone to undertake the task.

I want to thank the chairman, Dr. Hoggan, for his invitation. I have always enjoyed myself at the meetings of Dental Societies, and it is only fair that I should take a little of the work.

The subject title of the paper under discussion, leaves scope for a very wide range into dental science, oral surgery and medicine and therapeutics. "The Diseases that Destroy the Supporting Structures of the teeth and the treatment of Caries."

I feel that I can only attempt to say a little of those phases of the question which have perplexed me much and some of them for a long time.

If I only read to you from my experiences, many or most of them failures, I, myself, at least, shall derive benefit, for surely open confession is good for the soul. You, if you are inclined, may benefit by pointing out to me where I might have secured success, for is it not more blessed to give, than to receive.

"Caries," or rottenness, is the molecular death or decay of the bone, in which it becomes soft, discolored and porous. It produces a chronic inflammation of the periosteum and surrounding tissue. Caries may be central as a chronic abscess, when it will burrow its way through the cancellous bone and soft parts until it opens externally by a sinus or fistula and discharge its fetid, pus-like contents; or may be superficial, working only on the surface.

This condition, if taken when in the form we are all familiar with, viz., the alveolar abscess, and treated properly, nine times out of ten, by simply washing through the fistula, nature will do the rest, if we see to it that the source of infection has been eliminated. But if for any reason this be not done and caries set up in the deeper structure, then we may have more trouble than we bargained for,—to say nothing of the poor patient. And right here, if you will allow it, I shall cite a trying experience, and a most remarkable case of cariosity. And mark well,—not remarkable because I myself was unable to bring about a cure, but because the patient was treated both at the Royal Victoria Hospital, Montreal, and at the Ottawa Hospitals without success. I think it was at the Ottawa Hospital the trouble was pronounced caries. The patient would not undergo the operation necessary while in Ottawa, but wished to return home and have it done there. So it fell to my lot as her dentist to be closely connected all the way through with this case, which developed double antral diseased condition.

I shall try to give you in a few words, the history of the case, what was done on several occasions and operations, and what results were obtained.

The patient, a lady, thirty-five years of age, presented for the first time, with superior centrals having small approximal fillings only involving the mesial corners. The superior right central developed soreness on percussion. I removed the filling and using cocaine pressure, removed pulp and with great care, filled the root and left it for a few days. That was on July 20th, 1906.

The soreness remained; the periosteum and gum tissue became inflamed and the central was extracted under somnoeform anaesthesia. A small bridge was made, supplying the lost central and worn for some time until it was thought advisable to remove it as the central root socket still gave trouble on different occasions, this was burred out, and curetted by myself. It would show some slight tendency to heal. We called a general surgeon in consultation. The process in the vicinity of the central and lateral was thoroughly curetted with large burr in engine, the patient being under ether anaesthesia. On that occasion the surgeon punctured the antral wall entering at the canine fosse. The contents showed a healthy state, at least no pus.

However there was very little improvement. The caries had spread along the upper right side. At this time the patient was taken to Ottawa and in consultation with a surgeon and a dentist, it was deemed advisable to extract the remaining teeth on that side, and the trouble was pronounced an extensive case of caries.

On April 19th, 1907, in company with two physicians and under ether anaesthesia, the process of the whole right side of upper Maxilla was burred and curetted. On this occasion in burring over the root socket of the second bicuspid, the burr dropped into the antrum, the bone being soft and porous. The antrum was found to be badly diseased; it was washed out and curetted. We afterwards kept it packed with 10 per cent. iodoform gauze. And now the general condition of the mouth improved somewhat, for a time. The case dragged along, however, with a great deal of discomfort for the patient, and with a good deal of attention given by myself, all without much encouragement in the way of improvement.

In October of 1908, I had the pleasure of calling Dr. Andrew McDonagh to see the case. He diagnosed a diseased condition of the left antrum, and on October 22nd, under a general anaesthetic, I proceeded to open the left antrum, expecting to have to drill through the process. To my surprise when the gum tissue was lanced, the antrum was exposed, caries having destroyed the floor. Both antri were now well opened and after a long siege of dressings and washings the mouth assumed a fairly healthy condition. We tried then to close up the left side by ordinary means, such as freshening the edges of periosteum, stitching with heavy silver wire suture, and even using the actual cautery. It would not close.

A nose specialist, of the Royal Victoria Hospital, Montreal, was called and took the patient to the hospital. After two attempts at stitching the right opening it closed. After three attempts and failing in each to get a closure of the left side, he gave up the attempt. I have made two attempts since then to stitch the left side, but the tissues would not unite. This failure is caused, I conclude, from mouth infection. This last week I have filled the antrum entirely with hot paraffin, and it seems to give the patient a good deal of comfort. I have recited this experience somewhat at length, to show you to what extent caries may go, and that it is not always so easy to deal with, or to know exactly what to do.

I believe now that no antrum should be opened through the alveolar process. And if an opening is made, it should be closed at once, if possible; and if required for treatment, a new opening should be made either through the canine fossa or from the nose under the anterior border of the inferio turbinated bone.

And now let us turn our attention to "necrosis."

The distinction between caries and necrosis of the bone, seems so slight that, from observation, one is scarcely able to decide until the bone affected shows a line of demarcation. The medical profession are accustomed to include them under the one term of cario necrosis.

In the case of necrosis, the condition in the bone corresponds with gangrene of the soft tissue and arises, like caries, from the interference of the blood supply. The most common causes are injury, acute inflammation, and chemic poisons, such as phosphorus and mercury. In acute inflammation the exudations occurs into the cancellous spaces and haversian canals, giving rise to tension and compressing the blood vessels so that necrosis results. The living bone in contact with the dead portion, inflames and causes a line of demarcation identical with line in gangrene.

Necrosis of the superior maxilla is much easier to manage than of the inferior. One can get much better drainage and from the size and environment of the bone, one can extend the field of operation more readily. In this case, as in the former, I would like to cite a case from practice of necrosis of the right side of the mandible,—the disease originating in the region of the temporary molar. The case, Feb. 1909.

A child, about seven or eight years of age, presented for dental treatment, her head bandaged. On examination there was a fistula discharging on the cheek at the lower border of the angle of the Ramus. This state of affairs had been going on for about eighteen months. The ripe abscess had been opened by the ever-ready vest-pocket lancet of the physician. The condition within the mouth had been allowed to remain, viz., a temporary molar tooth swimming in a pool of pus and inflammed tissue.

This was supposed to heal of its own accord, but its long winding and tortuous sinus did not even carry off the pus which at the time was overflowing into the mouth.

After persuading the parents that the abscess would not get better without surgical interference, I was asked to undertake the treatment. The offending tooth was extracted. The pocket and root socket was packed with gauze, to ascertain the extent of the infection.

Upon examination the bone was found to be in a diseased condition, extending from the second bicuspid to part way up the anterior border of the ramus. It showed no line of demarkation, felt fairly hard, but was deeply pitted. The only thing which offered to do, was to burr away as much as possible; this was done at times under a general and at others, under a local anaesthetic.

We used a 40 per cent. solution of zinc chloride as a wash, burred the fistula from the inside through to the outside. Not until, August, 1910, when the case became very alarming, were we able to release the sequestrum. Then by passing a periosteal elevator from the outside and separating the cheek tissue from the jaw, and then with a pair of forceps, extracted the last piece of diseased bone, the specimen of which I have here.

When done there was practically only the ridge, which affords attachment to the internal pterygoid muscle left of the mandible at this point. The recovery was remarkable. The bone has filled in well. But of course the first and second molars will never erupt. A rather unsightly scar is left on the cheek, but we hope at some time to take some steps to relieve the puckered appearance.

I have cited this case somewhat fully to show to what extent necrosis set up in the jaw at that age, may develop.

On the medical and surgical treatment of dental alveolar abscess, I feel I can say very little that is new. From personal experience they have no special terrors, nor should they, I believe, present much difficulty in the management of them. The method of treatment should not vary a great deal between the different cases. If single rooted teeth, they seem to present very little difficulty once a discharging fistula has been established. The method of proceedure which has given me most satisfactory results, is perhaps one used by most practitioners,—open along the geometrical line of the pulp; remove the debris from pulp chamber and canal with mild antiseptic (as formolid and tepid water) in the abscess syringe, or even in a metal hypodermic syringe. Wash through the canal and out the sinus. Apply the rubber dam; wash with a 10 per cent. solution of tricloracetic acid. Dry out the canal with alcohol and as a root dressing, I use formaldehyde (40 per cent.) with equal quantity of carbolic acid and with the mixture make a suitable paste of zinc oxide. Pump this up the canal with a smooth brooch. I am not particular even if some of the paste is forced through the apical foramen and even out through the sinus, as often on the day following I have been able to see the white paste oozing out of the fistula. The canal should then be carefully filled with gutta percha points dipped in chloroform.

This, I take it, if carefully done, is all that should be required for, as it were, internal treatment. If the abscess does not dry up in a few days, then look to the outside conditions. The apex of the root, pus pockets or tortuous alveolar sinus, must still be the source of infection. The sinus should be probed and its direction carefully noted. Then under a local or general anaesthetic, raise the periosteum well out of the way. (I am not in favor of plunging an engine-driven instrument through soft tissue alveolus and bone in a blind frenzy, expecting to intelligently curett a pus-pocket, or amputate the end of a root.)

In a few minutes this will stop bleeding and with the aid of a 10 per cent. solution of cocaine in adrenalin, you will have practically a bloodless field for operation. The sinus then may be intelligently burred or curetted and by removing a small piece of the process covering the end of the root, it may be intelligently smoothed and any alveolar pockets removed. The field operated on, should now be washed and sterilized, the periosteum and gum replaced, and with one stitch closed. The whole affair being done carefully and intelligently, not floundering blindly about in blood and soft tissue, as is often attempted in a feverish hope of striking and removing the area causing the infection. In the case of multiple rooted teeth, the line of treatment is the same as that outlined above; after the offending root or roots, as the case may be, are located.

In my opinion in chronic abscesses of the lower teeth (in particular, those of a year or two year's standing) especially those with fistula discharging externally, they should be extracted if they do not yield to one treatment.

DR. CARL E. KLOTZ: I enjoyed the paper very much because it is a matter I have taken considerable interest in. In the case of a fracture I like to make it as rigid as possible. In regard to the remark of Dr. Webster, I cannot see the difference between keeping the mouth in position with the wire and with aluminum. Of course if I cannot adjust the lower jaw without utilizing the support of the upper I always resort to wiring. In cases where I could not do it I have wired it temporarily and afterwards take the wires off and take an impression and then make the splint either of aluminum or vulcanite. Of course if you have a compound fracture, such as I came across, a three cornered piece broken out and hanging down loose, you have to utilize both the upper and the lower. Fortunately in that case the patient had lost a molar both in the upper and the lower and he could be fed throught that opening.

DR. MURRAY: I was very much interested in the part of the address relating to the fracture of the lower jaw. We were told that if any practitioner practised long enough he would certainly fall in with some such trouble, and that has been my experience. For a number of years I did not have a case such as has been described, but during the last few years I have had one or two cases of fracture and also several cases of necrosis. I just wish to call your attention for a few moments to a complex fracture I had to do with a year ago last January. This may not be of interest to the specialists, but it may be interesting and profitable to the general practitioners. A Frenchman, about 30 years of age, was at a wedding where they had a little too much spirits around, and he had run up against a man's fist, with the result that he had a fracture right at the third molar, and also on the opposite side between the two bicuspids. The man went to his local physician, who kept him for very nearly a week trying to fix it, but finally he sent him to where I was located to another physician, and that physician finally brought him to me. That was over a week and before I could commence my treatment infection had started. He was brought to me on a Saturday and I could not do anything but give him something to keep his mouth sterilized until Monday. On Monday I could hardly get my finger in his mouth to find the fracture at the third molar. I could feel it on the anterior part of the jaw very easily as it hung down possibly half or three-quarters of an inch. It was a pretty hard proposition to do anything with. However, with the assistance of Dr. Thompson, who is here to-day, I succeeded in getting an impression of the upper jaw. I succeeded also in getting an impression of the lower jaw. I was able to articulate that correctly for the simple reason that the teeth had worn certain groves in the uppers and lowers. I put it in my articulator, or I cemented it with other appliances, and I made a vulcanite splint. I had very good success with that. It fitted the superior maxillary perfectly and also he could close his jaw upon the lower. The articulation was good, but the other part hung down. Then I did as Dr. Logan told us, I forgot he was human at all and I forced that broken part, swollen as it was, with the abscess there, to its proper position. Then my trouble was to know how I was to keep it there. I held it the best I could, with the assistance of Dr. Thompson, and I made a plaster cast which came up to the ear, and I fastened it with straps coming up over the head so that I could buckle it up. It was so swollen that I had to go a good deal by guess, but I knew my articulation was right, for I knew from the wearing of the different teeth. His teeth were intact, and I had to extract a lower bicuspid in order to feed him. He was then sent to the hospital, and I gave the nurse instructions to thoroughly sterilize his mouth every hour. Of course this may have been a crude way of doing it, but the results are there to-day to show for themselves. When I took off the splint his articulation was perfect. But I can tell you when the case first came to me it was not a very inviting proposition, but these are the things we are sometimes up against.

DR. GARVIN: I would like to ask a question with regard to the removal of the buccal root of the upper molar, whether it is justifiable to leave most of the articulating surface intact, providing it is advisable to inlay that tooth to the adjoining tooth, in which case there will be no danger of its tipping over, and it will give a greater masticating surface.

DR. A. D. A. MASON: It has given me a great deal of pleasure to listen to Dr. Logan to-day. He certainly has given information which is practical, and I want to congratulate this convention on having him here this afternoon. There was one point I would like to touch on, and that is about the sealing in of arsenic. Dr. Logan does not believe in using sandarac dressing for sealing in arsenic, but in my own experience I have had more success with sandarac than any other material when I am trying to keep arsenic in a cavity. I do not know why a dressing should be left in for any great length of time, but for the application of arsenic I found it very good indeed. Another question I would like to ask is in setting a splint in the fracture of a lower jaw, for instance, does he give his patient an anaesthetic to work that jaw up into the splint. The most difficult part in handling a broken jaw is the setting of the splint. At least I have found more difficulty with that than anything else, and I have always found I had to give a patient an anaesthetic and work the fragments up into the splint so that when I mixed my cement and wanted to get it there in a hurry I knew how to do it, and the jaws were relaxed, or the muscles were relaxed, and they would go into their places with ease. In setting those splints I find the copper cement where the moisture does not bother you so much is the best. I have even had them come loose and have had to re-set them, and I have found you can do that without an anaesthetic very easily. I also wanted to ask what materials were used for the impressions.

DR. LOGAN: Model compound.

DR. JAS. M. MAGEE: There are two points I would like to speak of. One is with reference to the sealing of arsenic in the tooth, and the other is in reference to the application of a splint on the lower jaw. Will it not apply to the upper jaw as well? I do not think any man is justified in using sandarac for sealing an arsenic application in a tooth. One experience I had at home I can cite a very good reason why. Had I used it for sealing the arsenic in, the patient probably would have had a very serious time, for the second day after she appeared in my office she met with a runaway accident. Her collar bone was broken, and I don't know what she didn't have broken, and she couldn't come to me for a great many months. Now, had I sealed that arsenic with sandarac I wouldn't like to say what it would have been like. I think a man is not justified in sealing it in such a way that in case of accident it would not be safe. So far as the material oozing out is concerned I do not think the cavity is properly sealed if it oozes out into the proximal space. Then with regard to splints on the lower jaw, the proper way is to cement it on, I believe. I also believe the patient should have an anaesthetic when it is applied.

DR. LOGAN: (closing discussion) Before answering the questions I want to say something about that lingual root that I was asked about, if it would not be all right to cut the root off near the body and leave the greater portion of the crown to be inlaid. I believe you can inlay it better if you go right through the body of the tooth or practically through the body of the tooth and prepare the cavity, as is outlined here in this model, for the reason that it prevents any pressure being brought upon the tooth. All the stress is taken by the inlay forcing down against the tooth, protecting it in every way. Now, to those who are interested I have a model I did not intend to show. It is going to Dr. Johnston, who is on his way to Australia by way of Vancouver. This is a case of a pyorrhea mouth, a bad condition about the third molar and lingual root, the first molar out, and one bicuspid gone, all of them involved by pyorrhea. Now, you would have to remove that second molar if you did not overcome the condition of suppuration. To do that the tooth was cut directly in two as that model shows, and then an inlay put into the third molar, using two attachments. Now, I presume it is agreed that in every pyorrheal case we must use two attachments at either end of your bridge. In pyorrheal cases if you use a single attachment it will get loose. I do not mean the bridge will get loose, but the tooth will get loose from its attachment. This shows a practical case that has been in for two years with the lingual root removed. Every time you cut a lingual root in two and remove it if the tooth be exposed it will be all right providing that there is a perfect attachment to the buccal roots, but you cannot pass an instrument in between. If you can pass an instrument in there, the tooth is gone and you had better not try it. This model shows where a knife was used. In pyorrheal work in five years' time I believe one of the most valuable instruments in operating will be a knife. In this case a knife was used and the tissue was cut directly through the festoon down around the cusp, the lateral, and the central, and the tissue was taken out in a piece. This case has been under treatment for nearly two years with recurring infection, and there was no deposit on the roots. Re-infection was taking place, and we had to cut off the gum to save the case. This model shows a very nice anterior splint where the pulp is alive, and you drill directly through just below the incisor edge where the enamel develops and the dentine comes in, going around the central incisor and then going through the lateral and cusp.

Now, Dr. Webster spoke very correctly when he said that he did not feel it was wise to treat a tooth for the purpose of saving the pulp when it would be relieved by cold. When the pains were relieved by cold he considered it a hopeless condition of the pulp. Now, gentlemen, if you remember that, you will save a lot of time in the treatment of teeth. I presume probably every man in this room was told sometime in his college days that when cold relieves the pain of a pulp it was relieved because the gases that were created by the putrid condition which obtained, and the cold relieved that for a moment or two until the cold was overcome by nature and then the pain started again. That may be true or not true, but I do know that a pulp has the pain relieved from it when it is not a suppurating pulp, and we will talk about that abscess pulp in a few minutes—when it is not a suppurating pulp or putrescent pulp. Pain is relieved in a pulp when it is involved with a rather full non-septic inflammation. In a non-septic inflammation of a pulp that pain will be relieved in many instances by the application of cold. I had a patient who came to me once on the 4th of July morning, when I didn't want one. The patient called me up and I got up and went to the office—it was soon after I went into practice—and I went into the reception room with her and then went into my operating room ahead of her to see that everything was all right, you know, and as I passed out to ask her to come in, I found her with a loving cup in one hand and a bottle of water in the other hand, and she was passing the water from her mouth into the loving cup. That told me right away with my knowledge at that time that I had a condition of gas formation in the tooth. I took her into the office, and sure enough I found the tooth was very sore under pressure, and that confirmed the diagnosis in my mind. I assured her that I wouldn't hurt only under pressure, and to overcome that I did probably what you do, I took a ligature and put it around the tooth in a loop and pulled up on the tooth as strongly as I pushed down on the tooth. So I was holding this tooth up with the ligature, and I had already assured her the only pain I would create would be the pain of pressure, which I was overcoming as much as possible, but very suddenly I found out my mistake. I probed into a live pulp. But nevertheless the cold relieved it. If I had had an ulcerated condition or suppurated condition that I had broken upon I would have found no live tissue there. In the last few years I have extracted a few teeth when the pain was relieved by cold, starting again as soon as the cold water was overcome in the mouth, and I found in a number of those cases nothing but straight, true, inflammation of the pulp, and no suppuration process of any kind. However, I want to say that when a pulp is found where the pain is relieved by cold while it is alive or partially alive I will admit always it will soon die if you leave it alone. Dr. Webster said he preferred to call it an abscess of the pulp rather than suppuration of the pulp. Well, it is only a little thing, but just a moment on that. Pulps are infected; there is a suppuration of the pulp present under two conditions. One is a condition of an abscess formation of the pulp and the other is a condition of suppuration of the pulp where probably 80 per cent. of the pulp has died, an ulcerated condition of the pulp, not an ulcerated tooth. In an ulcerated condition of the pulp the pulp is exposed superficially, suppuration gradually occurring and going into the pulp. Now, that is suppuration of the pulp and it is a suppurative process. Another thing we might have said is that every pulp which is exposed by dental caries is a pulp that must be assumed to be an infected pulp. In reference to the rubber splint rather than the aluminum splint, the great advantage of the rubber splint is a single one, and that is the one outlined by Dr. Webster, that you can build an articulation around on the tooth and distribute the force of mastication, which is a very good thing. One disadvantage about the rubber splint in my mind is it fits too well and it is very difficult to get into place. If any man has undertaken that, he knows what I mean. It is very hard to get into place. When you swedge the aluminum you cannot make it fit well. It is all right, but you can't. I personally could not get the fragments into place with the rubber splint, but I can do it with the other. Then in reference to the wiring of the teeth together. There is one thing I should have said and did not say, although it has not been brought up in the discussion, and that is that the stomach must always be empty when you wire your teeth together, for some times, owing to a little hemorrhage or the pain created the patient becomes nauseated, and if his teeth are wired and he vomits he cannot get it out of his mouth and he may choke to death. Then as to wiring of the lower to the upper, I believe it is the only way to treat a fracture behind the last tooth. In that way you bring the parts right in their right places. The technique of amputation has been questioned, one feeling he would like to use a 10 per cent. solution. Personally I would like to use that providing it was a one per cent. solution rather than a ten per cent. Of course it does not matter very much. It is only a question of the cocaine you put in. I might with one per cent. solution get as much cocaine as the speaker would with his 10 per cent. To be sure I fail in the amputation of root ends. If there is very little of the bone destroyed around the end of that root,—and this should be determined by an X-ray or by a sharp steel probe that will penetrate straight through and you can feel around in there and find out how much is exposed,—if there is a little caries process in there a very good way is to make a straight incision right through and then with a chisel you may expose the root end, and draw the splint back and then you can cut off the end of that root, but every time, gentlemen, if there is a great deal of caries process in there you had better extract the tooth. The case of compound multiple fracture spoken of by a gentleman here that had been under long treatment, certainly that was a difficult case to control. Any time you get one of those compound multiple fractures let them go for three or four weeks and then try to reduce them and you have something that is difficult, and yet you have an advantage in this way, in three or four weeks after the fracture has taken place the muscles have ceased to have the tendency to draw those fragments out of place. That gentleman did not have much trouble in keeping those fragments in place after they were once in that splint. As to the treatment of the cyst case around the root end, the treatment is the same as if it is of considerable size—and they vary from the size of a pit to nearly half a cherry—it is better to act the same as if you are going to have a root end amputation. Wherever there is a cyst that has been very long there is absorption at the end of that root. You fill the root canal first, because you can do it better then, and then go in and amputate the root end and curette the cyst. Now, I will admit that many men get better results with sandarac varnish than they can with something else. I cannot do it, but I know some older men in the practice of dentistry who can seal it in better with sandarac varnish than I can with cement, and I think I can seal it in with cement. They have had years of experience and they know how. One man I have seen, who does it very well, takes cotton and separates it out and then saturates the varnish through every shred of that cotton and in that way he gets it very hard. Some, however, just put a little on the outside, but I can't do it even that way. In reference to the setting of fractures with or without an anaesthetic, I have never been called upon to give an anaesthetic to reduce a fracture. I spent some years in the hospital assisting men in this line of work before I got the opportunity to do it myself, or try to do it myself, and I found they had this trouble. You get a patient under an anaesthetic and the tongue is moving and the mouth is full of secretions, and you cannot keep the mouth as dry as if you keep the tongue up and put a roll of cotton beneath, and around the outside of the teeth. When a patient is under an anaesthetic it is not a very wise thing to put all that cotton in his mouth. Then you cannot handle him nearly so well because he is lying down. I can get at a patient when he is sitting up in front of me better than when he is on an operating table, but other men may do it better the other way. In reference to the character of the cement, I am not in the cement business, but Caulk's cement I prefer under those splints. Now, in reference to antrim pus and antrim work, this case spoken of here was operated on four or five times. The statement was made that when the knife was passed through the soft tissue it dropped into the antrum. That meant there was a long standing caries process destroying the bone intervening. What else does it mean? It means wherever there has been a chronic condition like caries it is sufficient to destroy the buccal wall of an antrum and that the mucus membrane has been irritated for a long time, and when you irritate a mucus membrane like the antrum for a long time you will develop in practically every case a definite thing, and that definite thing, gentlemen, will be polypus growth, little tumor-like growths, and you can wash that antrum out as long as you have life and you will not have that antrum giving off a normal secretion unless you make a larger vent than a quarter of an inch. Make it as large as your thumb or first finger and get in there and curette it down to the basic membrane and then you will break away that mucus membrane that is throwing off that secretion. It will never get well if those growths are in there. They have got to be removed because they give an abnormal secretion and infection takes place. In every old case of antrum open it up and then curette it perfectly and take off the cover of the bone, and then with a sharp steel instrument examine the bone for caries and where found remove it. If there is a laminated portion standing outside the floor of the antrum, as there is in many of these old cases, that must be broken down. Then after you have done that pack that antrum with gauze for a day, and then remove the packing for a few days. Keep packing with gauze for awhile. Now, I hate gauze as much as any man here, but I think that is a place for gauze. That is, the new cells springing up to cover over that bone must be kept back and condensed against the bone to get the proper kind of membrane covering the bone, so for the matter of a week or ten days I would pack that antrum with gauze. Always put a single piece of gauze, never two pieces. If you do you never know when you have it all out. Then use Beck's paste twice a week. Never fill the antrum full because if you pack it up tight maybe you will get a severe re-infection. Then let the patient come in twice a week or so, and fill the antrum partially with Beck's paste.

I thank the gentlemen who have taken part in the discussion. I have appreciated being here very much. (Applause.)

THE GREAT NEED

A. W. THORNTON, D. D. S., L. D. S., Toronto, Ont.

Delivered at the banquet given by the dentists of Pittsburg to the Institute of Dental Pedagogics

Mr. Chairman:—I presume that there is not a man in this room to-night, who has not at some time felt a longing, a desire, to possess the power, that by common consent, is ascribed to the world's great public speakers, the power to stir men out of themselves, to make the blood pulsate, the breath to quicken, the eye to glisten, to move men so that they see with the speaker's eyes, feel as the speaker feels, and become obsessed with an overmastering desire to act in harmony with the expressed will of the speaker. I confess honestly, that as I thought of speaking to the men who are here to-night, some such longing took possession of me. But I realized as fully as any of you do, how absolutely impossible it would be for me to exercise any such influence. Such power is bestowed upon but few men, it is the divine gift, the gift of the Gods. What then must common mortals do? Must we refrain from saying anything, because we do not possess the wisdom of a Solon, the eloquence of a Burke, the homely magnetism of a Lincoln? No, the world to-day is not so much concerned with ornate language, beauty of diction, or the force or elegance of an epigram, as it is with the integrity of purpose, and depth and honesty of conviction of a man who presumes to speak to his fellowmen, with the idea of influencing their conduct along any line of action. This then is my only hope, indeed it is my only warrant for speaking to you at all, the fact that I am speaking to you from the depth of my heart, my own honest conviction.

I need not remind the gentlemen here present of the evolution of the profession of Dentistry. From the lowliest and crudest of beginnings, from the peripetetic dentist with a few instruments, going from village to village, extracting teeth and making dentures, from the time of indentures and apprenticeships, from all of these, to the position of Dentistry at the present day, is indeed a far cry. To-day we have the man with well trained mind, fitted in college, wherein no expense is spared, that the best possible training may be given to the student preparing to enter the profession; we have the most extensive and expensive manufacturing plants, turning out instruments and appliances, almost human in their perfection, We have changed and modified and improved until it would almost seem that we have reached the limit of possibility, the point at which we might exclaim"ne plus ultra," nothing beyond. And yet I have dared to suggest, what I believe many of you feel, that there is still "a great need." Over the door of every Dental Office, in every town and city on this continent; over the door of every Dental College in the sanctum of every editor of a

Dental Journal, the discerning eye may read the familiar words, "men wanted."

I know that you will not misunderstand me. I know as well as you know, that in private practice, in college, and in professional journalism, we have many grand and capable men, but their number is all too few, for the Herculean tasks that must be undertaken. If the profession of Dentistry is not to be thoroughly and absolutely commercialized, the most stupendous efforts must be put forth, to combat the present day tendencies.

And you men, you who are teachers, must undertake the task.

I need not remind you of the materialistic tendencies of the age. Everybody, everywhere, is worshipping the golden calf. And the general feeling is, that this materialism, this money worship, dominates the professional man to-day, as thoroughly as it does the man in a purely commercial business. The feeling in the lay mind to-day is that the lawyer exploits his client, and advises litigation, simply that he may obtain a fee; that in the medical profession, thousands of operations are performed, and the credulity of the uninitiated traded upon, solely that the surgeon and medical man may profit, and that the dentist is advising and inserting unnecessary and expensive operations, from which patients do not receive value. Our boys are going out from our colleges to-day and the thought uppermost in their minds is "Dr. Smith made $5,000 last year, Dr. Jones made $10,000, Dr. Robinson made $20,000." Not a thought of the service rendered to the people who paid these amounts. Saddest of all is the thought, that there is not in the minds of many of our students, a desire to equip themselves, so as to render the service that will command these large fees. The great thought is "get the fee," regardless of the worth of the operation. We hear so often the words "how much," "how much," "how much," that our very souls grow sick of them.

Once again let me beg of you not to misunderstand me. I know, we all know, that a dentist. in common with every other professional man, owes it to himself to look carefully after the business end of his practice. His fees should be sufficiently large, and his accounts so promptly collected, that he can live comfortably, make some provision for the proverbial rainy day, and promptly meet his obligations. But all this may be done, without making the bigness or the smallness of the fee the chief thing to be considered. And Sir. I very much doubt the wisdom of Brother Tom, or Brother Dick, or Brother Harry, or Brother anybody else, sowing this country knee deep with literature, insidiously appealing to the cupidity, the selfish nature of the men of the profession, a part of our nature all too prone, to run riot, without any stimulation.

Now I trust that none of you in talking of this subject, will say, "Oh Thornton was talking through his hat, or playing to the grand stand." We must have fees, and we should have large fees, for I know of no calling that demands a higher standard of intelligence, and more constant application, a calling more exacting in its demands than the faithful conscientious practice of Dentistry.

But there are some things that come before the fees. We must have the skill, the ability, to render the service that will be worthy of large fees, and the service must be rendered, patients should receive value for their money. More than that, let me say, I believe there is a better way to obtain large fees, than many of the ways that are being followed. If the Dentists of this country, could once convince the public that the advice given, the service rendered, was absolutely honest and unselfish, if men and women could come to a dentist and say "do what you think is best, I know you will do what is right," we could obtain a practice, both in volume and in value, such as few of us have dreamed of.

Is it possible to bring about this condition? I do not know that it is, but I do know, that there must be in all our schools and surroundings, all our teachers, an atmosphere that will be helpful in the production of such a professional standard and spirit.

We must teach our students to have the most profound respect for the sacred nature , the perfection and beauty of the human body, and that they must not ruthlessly mutilate any portion of it. They must be taught to realize too, the difficulty and delicacy of our operations, so that they may give themselves to the arduous task of proper preparation. They must learn too, that our patients come to us, very often suffering, and always ignorant of the cause, and that they are absolutely at our mercy, and that to take advantage of their suffering, their ignorance, or their credulity, is more contemptible than the petty theft of the man who robs the clothes line, and more cowardly than the act of the highwayman, who robs an express car, or sandbags a millionaire.

In the name of God, let us teach our boys not to look upon the fee, as the only thing to be sought after, regardless of the value of the operation, its approach to some degree of perfection, or the patient's ability to pay for it.

"God give us men, a time like this demands
Strong minds, great hearts, true faith, and ready hands,
Men whom the lust of office does not kill,
Men whom the spoils of office cannot buy,
Men who possess opinions and a will,
Men who have honor, men who will not lie,
Men who can stand before a demagogue,
And scorn his treacherous flatterings without winking,
Tall men, sun crowned, who live above the fog
In public duty, and in private thinking."

A REVIEW AND FORECAST OF MODERN DENTAL PRACTICE

H. E. FRIESELL, D.D.S.,
Dean, Dental Faculty of University of Pittsburg; President of the Institute of Dental Pedagogics.

Members and Friends of the Institute,—In harmony with the time-honored custom of this organization, I appear before you with an address. My numerous and illustrious predecessors have covered the field so well that there is little that has not been touched on. However, it has been wisely said that the world needs not so much to be informed as to be reminded; so with this axiom in view I shall present some ideas which, though not new, seem to be timely and to merit our serious consideration.

It is needless to say that I deeply appreciate the honor that has been conferred upon me by this Institute, which I consider the most vitally important organization in dentistry. This is our twentieth meeting, and Pittsburg shares with one other city the unique honor of twice entertaining the Institute. The other favored city is Chicago, that well-spring of dental enthusiasm and progress, where the Institute was born and from whence it has since received its greatest stimulus.

Unfortunately I was absent at the time of your former visit to our city and did not get an opportunity to attend the Institute until the Buffalo meeting, where I became thoroughly imbued with its ideals in dental education.

At that meeting I made acquaintances that have since ripened into friendships—friendships that have been an inspiration in the work that has here fallen to our lot. At subsequent meetings I have, with some measure of success, encouraged the attendance of other members of the faculty of the University of Pittsburg in order that they, too, might drink deeply at the fountain head, and the changes that have taken place here since your last visit are mainly attributable to their application of lessons and ideals learned by association with the members of this Institute.

I regret that more of our schools do not appreciate the importance of sending their teachers to these meetings. The enthusiasm and encouragement that come from association with the leaders of one's profession are surely indispensable to a teaching faculty.

A teacher without ideals, without a heart full of love for his profession and honest pride in his work, is a poor excuse. These things cannot be bought by salary cheques; they come under the head of contagious diseases. To catch them the teacher must be exposed to the disease, and there is no field of inoculation that compares with the Institute of Pedagogics. There is something about this organization that is peculiar to it; something that grips a man and makes him glad that he's a dental teacher and proud of his association with men who are warm of heart, big of soul, honest of purpose, and devoted to the same cause.

To have known Washington was a source of pride to our ancestors; to have been associated with the men who have composed this Institute affords us a similar pleasure. Membership herein has admitted one to a fellowship that does not cease with bodily attendance, but continues in the hearts of his fellows. I know that such men as Litch and Barrett and Stubblefield and Gray and Sanger and Snow and Byram are as surely here in the hearts of those who have met with them as any whom I see before me to-day.

During the twenty years of its existence this Institute has exerted a quiet but powerful influence in dentistry, but important as its work in the past has been, it is my belief that there now devolves upon it a more serious responsibility than ever before.

When the National Association of Dental Faculties was projected it was expected that all questions relating to dental teaching would be considered therein, but owing to the peculiar conditions existing in dental education all of that association's time has been required in regulating administrative difficulties. That association has done an excellent work, but of recent years its progress has not been wholly satisfactory to the profession in general, which is beginning to look more hopefully to this Institute for the betterment of conditions that seem to be capable of improvement.

Furthermore, the awakening of our people to the need of oral hygiene requires more dentists than our schools are providing; and the growing appreciation by the medical profession and the public of the importance of the mouth as a seat of local foci of infection demands a much higher type of dental graduate than was expected ten years ago. How to best meet these demands is one of the problems of this Institute.

The eradication of pain from dental operations must be developed to the point of practicability where every student can be made proficient therein. This demands more thorough work in physiology, physical diagnosis and anesthesia.

The development and encouragement of research work, especially in the field of dental pathology, is imperative in order that an intelligent basis for tre treatment of such discouraging disorders as pyorrhea, erosion, etc., may be developed. Most of this work of necessity must be done in dental schools, and dentists must be trained along these lines, for we cannot rely upon the medical investigator to solve our dental problems for us.

All of these things require the bringing into dentistry of the highest type of men. Dentistry can no longer be looked upon as the professional haven for those undisciplined intellects who chafe at "book study and theory;" nor as a fruitful field for him who aims to make money fast and easily. We must have men of ideals, men with ambitions that cannot be measured solely by the financial barometer, men who realize that dentistry offers them a calling where their labors will result in some real benefit to humanity.

The humanitarian and scientific atmosphere must be that which, in the future, shall pervade dentistry, if our profession is to occupy with credit the place it aims to fill. The prevention of disease; the insurance of health; the eradication of the most unbearable type of pain; the conservation of facial beauty; the lengthening of life; surely these are objects to attract the highest type of men.

We need more and better prepared men on our faculties; men who are willing to devote their whole time and their whole thought to mastering the problems of dentistry. To get these men we must pay salaries commensurate with their ability and application. We cannot do this and depend solely upon the fees from students and infirmary. Our schools must have other support, either in the way of endowment, state and municipal aid, or university assistance.

The day is here when the proper education of a dentist must cost twice as much as the student can be expected to pay in fees.

I believe the time has arrived when universities should all have dental schools. I believe that dental schools are as necessary as medical schools, that it is as vital that they be good dental schools as that we have good medical schools. I believe that the time of the private dental school is past, that except in a few specially favorable localities the next decade will mark the absorption of the private schools by the universities, and that the only place a private school can exist will be where one is needed and there is no university. In this it is not my desire to cast any aspersion on the private school; it has served its purpose nobly; it has made our profession; without it dentistry would not exist in the sense that it does to-day in America; but America has no right to expect the private school, and the poorly paid teacher in the private school, to carry the increasing burden any longer.

The public must be made to appreciate the necessity for having good dentistry and be willing to pay its share toward the support of good dental schools, as it does to those of medicine, engineering, mining or arts.

Through the proper extension of its clinical work into the public schools, the asylums, penal and charitable institutions; and by convincing the medical profession and the hospital authorities, the value of the assistance that dentistry can render in their field, the dental college can easily establish a just claim for state and municipal support and for university recognition.

The next few years should see a dentist on the staff of every state and municipal institution and of every hospital. These positions should pay a sufficient salary to attract young graduates for the first year after graduation. Appointment to them should be made a reward for highest records in the dental school of the same district and thus add an additional stimulus to the better class of men to study dentistry.

AN ACCIDENT OF ROOT AMPUTATION

About November 1st a young man of robust health applied to the clinic of a dental infirmary in Chicago for treatment of a chronic alveolar abscess of the upper left central and lateral incisors. It was deemed wise to amputate the ends of the roots of both teeth which was done in the oral surgical clinic and the patient turned over to an assistant for the subsequent treatment. The case made rapid progress towards recovery at first. About the 1st of January the patient moved to Toronto and applied to the infirmary of the R. C. D. S. for treatment about February 20th. The cavity had not been washed out for weeks as the patient thought it had all healed up. A few days before applying to the R. C. D. S. infirmary there was severe pain and much swelling. The parts looked inflamed and showed pus oozing from more than one opening. An X ray photograph was taken which shows a large abscess area, the root ends blunt, and the canals fairly well filled. (See Fig. 1.) Over the left lateral is shown a slight shadow which later proved to be a part of the amputated root end. When this was removed and the cavity washed and packed for a few days all signs of inflammation subsided and made a rapid recovery.

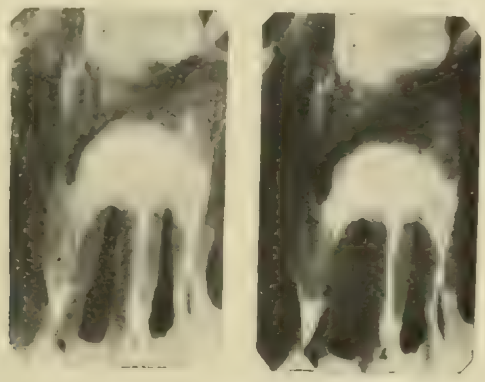

Fig. 1.

COCAINE

Notes on an Interesting medicolegal case, to Prof. V. E. Henderson, Department of Pharmacology, University of Toronto.

The following case is (as far as the author of these notes has been able to ascertain) the first of this kind to be published, and should serve as a warning to all those who use cocaine as a local anæsthetic to be careful to safeguard themselves by having a third party present, as they do when administering the volatile anæsthetics.

History of case. On Friday, Feb. 7th, 1913, Miss S., a small, somewhat nervous girl of 16 years, left her place of employment and walked something over a mile to the office of Dr. M. She had previously visited the office, but not finding the dentist in had not made any appointment. As there was no other patient in the office at the time, she was at once put in the chair. On examination the dentist found a much diseased molar, and after breaking down the rough and overhanging edges of the enamel, he used a large spoon excavator and removed all the decayed dentine and debris possible without causing pain. On washing out he found the pulp badly exposed. He therefore dried out the cavity and applied a paste of cocaine crystals and alcohol, covered it with raw vulcanite, and applied pressure in the usual manner. The pulp was then removed without pain, the hemorrhage stopped by a camphorated phenol dressing, and a temporary stopping applied. His assistant was present when the operation began, but having an appointment with his physician left before it was completed. The patient made an appointment for the following Tuesday.

She returned, however, on Saturday with her mother and brother-in-law and charged him with having placed his hands up her clothes, touching her skin, before he allowed her to leave the chair, and with having detained her against her will, making her sit on his lap and refusing to give her her hat until she made an appointment for another treatment. The complainants demanded an apology, and one not being forthcoming, stated that they intended to carry the matter to the police. They laid a charge of indecent assault.

Confirmatory evidence was offered to support the story of the complainant, by a girl friend whom Miss S. met in the street cars and to whom she told her story, and also by her mother, to whom she told the story after supper. The mother and brother-in-law stated that Dr. M. used the words "did not admit" and not "I deny the charge" when they saw him on Saturday, also he said "that he hoped that the case could be settled in a more friendly manner than through the police," and that "he would like the brother-in-law to stay and talk the matter over with him."

The defence consisted in showing that the office door was open, the blinds up, and that but a thin plaster partition separated the office from living rooms not belonging to the accused; in calling the accused, who denied the charge in full; in calling witnesses to establish the good character of the accused, in disproving one or two minor discrepancies in the story told by Miss S.; and in calling expert witnesses to show that cases of hallucination, especially of an erotic character, were not uncommon after the use of cocaine.

The judge in dismissing the prisoner stated that he would not consider the expert testimony offered, but that as it was the unsubstantiated story of the man as against that of the girl, he had no course open to him but to dismiss the prisoner.

Notes on the case. This case should serve as a warning to all of the danger of giving cocaine to any woman, especially perhaps if she is tired or of a nervous disposition, since all the best authorities, *e.g.*, Lewin, von Jaksch, Falk, Freud, Kobert, Erben, call attention to the danger of erotic hallucinations which do not necessarily come on at once, but may occur after the patient has gone home (Erben, Kobert). These hallucinations may persist for months (Halopeau). Hausle, Lepine, Bleichsteiner, and Falk call attention to the fact that anæmic women are more likely to show symptoms of poisoning than others, and Hausle states that he considers them particularly predisposed at the time of menstruation or during pregnancy.

In any case where persons return to make any such charge, they should not be listened to by the accused until he has obtained the presence of independent witnesses, and then only a simple prompt denial should be made.

The attitude of the judge in this as in other cases, emphasizes the necessity of expert evidence being called in all such cases by the Crown as impartial referees, who should aid the judge in forming his opinion. A panel of experts should be appointed by the Crown, who should be called by the judge and not the prosecuting or defending attorneys. The medical panel should consist of a toxicologist, surgeon, physician, and possibly one or more specialists, and a dentist.

There are few if any cases of hallucination under cocaine described in the dental or medical literature in English, and the author would like to point out the importance of this defect being rectified by any members of these professions who happen to know of pertinent cases.

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Selections

THE CHARACTER OF THE ADAPTION OF AMALGAM TO THE WALLS OF CAVITIES ATTAINED BY PRESENT METHODS OF INSTRUMENTATION AND THE USE OF THE BEST KNOWN ALLOYS, AS INDICATED BY THE AIR PRESSURE TEST

WM. E. HARPER, D.D.S., CHICAGO.

*Read before the Illinois State Dental Society, May, 1912.

It is the purpose of your essayist to present a report on the character of the adaptation of amalgam to the walls of cavities, as indicated by air pressure tests.

This report covers fifteen of the best known alloys at present on the market and the tests are selected from four hundred that have been made during the past fifteen months; and are considered sufficient in number, and of such average as to constitute a fair expression of our success in adopting amalgam to the walls of the cavities.

The inconsistency of the results has been a revelation tnd mortification to me; and these reports are verified by another investigator after having made two hundred air tests.

I know of nothing new to add to our present fund of knowledge on the crushing stress and flow of alloys, so trust that I may be excused from considering these phases at the present time.

I have struggled earnestly, industriously, and I hope intelligently, to secure reasonably uniform results in adaptation by the use of the various forms and sizes of instruments for packing, and with methods of instrumentation which include light and heavy hand pressure, mallet force, automatic mallet, and smooth ball burnishers.

My first tests were made in simple round cavities six millimeters in diameter and one mm. deep which required about five grains of alloy to fill.

Fillings in these cavities generally leaked at four to forty pounds, occasionally under four pounds, and the adaptation generally improved with the age of the filling, up to about six months, after which they would leak at low pressures; with these observations, I abandoned the use of the simple cavity for amalgam tests, as an expanding alloy would be forced into more perfect adaptation, whereas in a complex cavity it might result in early leakage.

I then designed a mesio-occlusal cavity which, in the difficulties of mixing and packing, proved to be the opposite extreme, as I found it difficult to fill such a cavity with one mix or some of the quick setting alloys under conditions which I considered necessary for careful tests. This cavity required about forty-four grains of alloy to fill; and in all the tests made leakage occurred under four pounds, with the exception of two or three which leaked at six and seven pounds.

I next designated a mesio-occlusal cavity with an occlusal retention, having a generally rounded outline and a depth of eighteen-tenths of a millimeter. This cavity required about twenty-four grains of alloy to fill and leakage would occur anywhere from one to thirty pounds, and most commonly around the margin of the occlusal retention.

Dr. Black suggested to me that I make the occlusal retention a little deeper, which I did in making a second form of mesio-occlusal cavity. In this cavity the dovetail was typically angular in outline and the depth increased to twenty-six tenths of a millimeter. This cavity required about twenty-four grains of alloy to fill, and the best fillings would resist a higher air pressure than the last described mesio-occlusal cavity, but good results could only occasionally be duplicated, and leakage would occur at from one to forty pounds.

The two forms of mesio-occlusal cavities represent the average form and size of cavities for which amalgam is commonly used, and in my judgment, is the fairest test for shrinkage and expansion, and faults of adaptation, whether due to faulty technic or some quality of the alloy used.

These test tubes are made from steel. From their under surfaces a hole is drilled communicating with the axial and pulpal walls of the cavity. A screw is fitted to this hole, and the end of the screw forming the axial and pulpal walls is made smooth and slightly tapered to facilitate its removal without disturbing the filling; after which an airtight connection of the filled test tube is made with an apparatus which consists of an air tank, a pressure gauge, and glass water bowl. The air is admitted to the floor of the cavity to pass from there to the outer surface, if there be any leaks; the location of which is indicated by bubbles when the test tube is immersed in the water.

A solid matrix is used in filling these cavities, and if the tube is packed on a solid bench or table (as in my experimental work) I would consider the conditions much more favorable to perfect adaptation than when operating in the mouth.

Our amalgam technic and alloys were greatly improved as a result of the invention of the micrometer. But a non-shrinking and non-expanding filling may present numerous defects in adaptation around the walls, due either to some quality of the alloy itself, or faulty packing, and the micrometer would fail to indicate the defect.

The micrometer measures movement only, and not adaptation, a distinction important to notice; and the measure of adaptation appears to me to be the essential guide to the proper instrumentation, and development of the best possible alloys, and in a cardinal quality second to none.

Compared with the indications of the micrometer, the value of the air pressure test as a measure of adaptation is well illustrated by the results of the experimental work.

Uniformly perfect adaptation cannot be secured by the use of any of the non-shrinking and non-expanding alloys.

My experiments indicate that equally good results are attained by the use of some of the alloys that show a shrinkage of one point and an expansion of five to ten points, reports of which I present for your interpretation.

Satisfactory apparatus for measuring crushing stress and flow having been provided for in the dynamometer, the invention of the air pressure test opens a new field for investigation, the practical value of which the future alone can tell, as the inconsistency of the results is beyond my ability to explain at this time.

The air pressure test is a certain measure of any movement that may take place between the filling material and the walls of the cavity to disturb its adaptation, and places at our disposal the means by which we may develop a more complete understanding of the necessary instrumentation and amalgam technic, and may also be the means of improving our alloys.

As recently reported, after careful investigation, amalgam work represents about seventy to seventy-five per cent. of the work of the average practitioner; therefore improvement along these lines would seem to me to be the most important practical operative question before the profession to-day, when the results we attain are known.

The crushing stress and flow being reasonably well provided for in the high grade alloys at present on the market, adaptation becomes the most important requirement for a perfect filling, but at the same time seems to be the most uncertain quality, and is probably the most common source of our failures irrespective of the ability of the operator.

For purposes of comparison, I have made numerous duplicate tests on the micrometer and found the results generally uniform if the weights and general technic remained the same.

When I started this experimental work, it was with the expectation that I would find on the market some alloys with which a skilled operator could secure reasonably uniform results; and , failing in this, I then endeavored to learn the cause of this variation by undertaking a wide range of experimental work, but regret to say that I have accomplished nothing yet that would justify a conclusion, except in a negative sense. The one reason of my acceptance of the honor of your committee's invitation was, that the consideration and discussion of these reports by this society might lead to valuable advice and suggestions for my future guidance; in which event I shall be richly rewarded.

The adaptation of my first experimental fillings proved to be very faulty, and examination of the fillings with a magnifying glass (after removal of the matrix) revealed many air spaces over the entire surface and particularly around the margins; and I have found it practically impossible to eliminate the imperfections until I abandoned the use of the large pluggers (twenty-tenths of a millimeter or larger) for the general packing, confining their use to the simple flattening of each piece of amalgam, then packing the entire surface with a rectangular plugger of the approximate size of twelve by eighteen tenths of a millimeter with all the force of the pen grasp, and until no crepitus could be felt under the force of the plugger, paying particular attention around the walls and margins, and confining my efforts to such a technic as would be possible in the mouth.

I am willing to go on record in this statement—that amalgam does not and will not spread into adaptation, but must be driven into contact and remain undisturbed during the subsequent packing. It is my conviction that the requirements for a good amalgam filling will be found just as exacting and similar in certain essential details as for gold, although requiring much less time to accomplish, when understood.

If my knowledge of amalgam was confined to the results of my experimental work, I could not be restrained from making an unconditional condemnation of it as a permanent filling material, but its long career of usefulness, and clinical experience has shown it to be of inestimable value as a tooth restorer and saver; and it is questionable in the minds of many whether it is second to gold in this respect, when we consider the inaccessibility and extent of a large per cent. of the cavities for which it is used.

It is the only available filling material that can be depended upon for reasonably permanent results in its proper sphere of usefulness, that is within the financial reach of seventy to ninety per cent. of the people.

This clinical record would seem to indicate that the adaptation of amalgam when packed into cavities in the teeth is more generally perfect than when packed into steel test tubes, and I believe that it is safe to say that the rougher surfaces of the walls of the cavities in the teeth serve the same purpose as the serration of the plugger by holding the amalgam under the packing force, a condition insuring better condensation and adaptation and the development of a greater resistance to crushing stress and flow.

It is also possible that a filling, packed into a cavity with the maximum force, exerts considerable pressure against the walls and brings into action the elasticity of the dentin, and this would allow certain walls to adjust themselves to minute movement (shrinkage or expansion) of the filling. The shrinkage of one point or the expansion of four or five points, indicated on the micrometer, would be materially reduced in cavities in the teeth, because of the difference in form, and bulk, and the unyielding character of the walls of the steel test tube, which are, I judge, conditions that must be considered in arriving at a scientific conclusion.

The amount of alloy used for filling a micrometer test tube is about sixty grains, and the amount required for an average large cavity in the teeth is about twenty grains, and this would reduce the movement to one-third that shown on the micrometer.

The practical value of this method of testing the serviceability of amalgam fillings in the teeth is not yet established, nor do we know the pounds air pressure the adaptation of a filling to the cavity walls must resist to remain permanent under the conditions of the mouth. However, I feel confident that this test is the best and most complete guide, at the present time, to the development of our manipulative skill and to the further improvement of our alloys, as the failures so commonly due to faulty packing or technic can not be detected by the micrometer, whereas the air pressure test will locate such faults in any filling material that may be used.

The micrometer is useless if we desire to test our gold fillings or inlays and for the same reason it would be useless for testing those amalgam fillings made from alloys that neither shrink nor expand.

I shall be much interested in the opinions of the profession on these points, and trust that they may be freely expressed, so that the future experimental work may be made more conclusive and valuable and conform more perfectly with the conditions with which we must contend in the mouth.

The trend of social and economic conditions is such as to justify the belief that a large proportion of our patients will of financial necessity find themselves dependent upon this material to save and restore to usefulness the posterior teeth.

Measurements of the diameters of the pluggers used are given in tenths of a millimeter.—*Dental Review.*

TOOTH ETIQUETTE

Do not carry the teeth in the tail pocket of your dress suit, for you are liable to sit down on them and be severely bitten.

When you have to sneeze or cough, go away by yourself in a dark corner and hold your hand over your mouth. You can never tell what will happen.

If the teeth click when you talk, oil them frequently, for noisy teeth often disturb the neighbors and there is enough to keep them awake at night without that. Do not carry the toothbrush in the upper vest pocket, for if you do people will know that you have not had your teeth very long.—*Dental Brief.*

Correspondence

SHOULD LABORATORY MEN ATTEND DENTAL SOCIETIES

The Editor, DOMINION DENTAL JOURNAL,—

As a member of the Toronto Dental Society I have always supposed that membership in that society was limited to dentists only. However, the last few years this does not seem to have been the case, as others, who should not be at all interested in the majority of papers read, have been in regular attendance. To some this may seem to be a small matter to write about, but, is it proper that any who are not dentists should attend these meetings? Of course, there might be some excuse for the attendance of laboratory men when a very technical paper is to be read on some new method along mechanical lines. But, the majority of the papers are on operative subjects in which laboratory men are not supposed to have the slightest interest. What is there to interest anyone but dentists in papers on the subject of "Preparation of Cavities for Gold Inlays," or "The Excision of a Diseased Root of a Molar," or "Pyorrhea Alveolaris," or "The Greater Things in Dentistry"? None, whatever, that I can see. Will not this intermingling in time create a false impression on the minds of the public as regards the relationship of dentists and laboratory men? I know of one laboratory man at the present time who is called "Doctor," by his friends, who, very likely do not know any different, and who are evidently not enlightened by the laboratory "Doctor."

Now I do not wish for a minute to leave the impression that I am trying to "knock" the laboratory men, or that I am jealous of any credit which they receive. We all know that the laboratory man is practically indispensable nowadays to the busy dentist, especially since the great development of dentistry along mechanical lines. The point I wish to make is, that a society composed of dentists is not the place for laboratory men to get their knowledge. The place for them to get in touch with new ideas is in a society or organization amongst themselves. I have often wondered why the real live up to date laboratory men of this city have not got together long before this and organized in some way.

Would this not be beneficial to both dentists and laboratory men? I am sure it would, and any such scheme would receive the hearty co-operation of the dental profession. Such a society could meet regularly and hear papers by men high up in the mechanical line of dentistry, and as a result we would have many men capable of doing any kind of mechanical work of the latest order, where, at the present time, only one or two can do that work.

I would even go so far as to suggest that, at the Annual Dental Convention, a laboratory men's section should meet at the same time, and take advantage of the mechanical clinics and exhibit their work.

Some may say that such a society would probably raise the charges to the dentist for mechanical work. That would probably be the case, but would we not at the same time procure better results in the work as a result of the advantages and discussions of such a society?

I would like very much to hear in these columns what other dentists and laboratory men have to say on this suggestion. I feel that there is not enough discussion of different topics amongst the dentists, and believe that such discussion once in a while would greatly brighten the columns of the "Dominion Dental Journal."

A Member of the Toronto Dental Society.

January 25th, 1913.

The Editor, Dominion Dental Journal:

Am taking the liberty of writing you a note regarding an unusual case which may be of interest to the readers of the Dominion Dental Journal.

There came into my office last month a man ninety-three years old to have his teeth examined and put in good condition. There remained in his lower jaw only two teeth—one sound, the other very loose. His upper teeth were all in place and in good condition excepting the second and third left molars, which he had lost a number of years ago. Not a sign of decay presented in any tooth. I extracted the loose lower, and at his request left the sound one, and inserted a lower denture.

He tells me that, although he had some difficulty "getting used to them," he finds himself lost without them.

There is a rather long flight of stairs up to my office, and the old gentleman goes up and down like a boy.

Others may have had even older patients, but the case seemed to me worthy of mention.

Yours very truly

M. R. BILLINGS.

The School Board of Regina has made arrangements with the local dentists to have the teeth of the school children attended to, as is shown by the following resolution: "That the chairman, the school nurse and superintendent be authorized to purchase necessary equipment for an outside clinic in dentistry after arranging with the dentists of the city for the carrying on of the work as suggested in their letter of February 12, and that the secretary be requested to express to them the appreciation of the board for their action."

Dental Societies

VANCOUVER DENTAL SOCIETY

Reported by R. C. BAMFORD, D. D. S., L. D. S., Vancouver, B. C.

The Vancouver Dental Society held its annual banquet on Saturday evening, February 15th, at the Hotel Elysium.

Dr. J. Milton Jones, president of the society, acted as toast-master for a list of interesting and much appreciated speakers. This banquet was the closing feature of a day's program which attracted to the city a very large percentage of the dentists of the province.

A very profitable morning session was given up to clinics, conducted by Drs. Edgers and Ballou, of Seattle, Wash., and by the following B.C. men: Drs. F. H. O'Neil, E. W. Bridgeman, H. F. Minogue, E. H. Crawford, W. F. Wright, J. E. Black and O. N. Geslie.

Much interest was taken in Dr. Edger's demonstration of nitrous-oxid-oxygen, for painless operations. Many of the men obtained the very desirable personal knowledge of the relief afforded by this method, by undergoing a slight operation upon themselves while under the influence of the gas.

A business session of the Provincial Board in the afternoon completed a day that was quite satisfactory to the executive and officers of this growing society.

CENTRAL ONTARIO DENTAL ASSOCIATION

It has been the opinion for some time among the dentists of York and Ontario Counties, that the time was ripe for Mutual Co-operation and united action by the dentists of said counties for a uniform fee, as well as an adequate fee, which would be in keeping with the increased cost of living, which would ensure for the practitioner a better remuneration, and for the patient a more efficient service. It was also felt that the public required to be educated with a more intelligent knowledge on the care of the teeth.

For these reasons a representative gathering of dental practitioners met in the parlors of the Prince George Hotel, Toronto, and organized themselves into an association, known as the "Central Ontario Dental Association."

A schedule of the fees was then drawn up, and ordered to be printed by the secretary, Dr. Wilkinson, Newmarket, and a copy sent to every practitioner in the district.

Having resolved that public dental education has given much needed instruction to the public in the prevention of decay and in favor of a healthy hygienic mouth, the public soon come to realize that the dental profession stands for health rather than disease, and prevention rather than cure, and dentistry will be more generously accorded the high place it rightly deserves among the scientific professions. With this aim in view a considerable number of addresses (with charts) have been given by Dr. Stewart, Markham; Dr. Smith, Stouffville; Dr. Clark, Newmarket; and others, throughout the district before Women's Institutes and other bodies. Nearly all the practitioners have signed the schedule scale, and the advance in fees has been acccepted by the public as only in keeping with the increased of living and is raising little or no objection. The next meeting will be held in May, when a number of points of interest pertaining to the profession will be discussed.

D. C. SMITH, D.D.S.,
Stouffville, Ont.,
President of the Central Ontario Dental Association.

Dominion Dental Journal

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ADVANCE AND NEED OF ADVANCE

The twentieth annual meeting of the Institute of Dental Pedagogics was held in Pittsburg, January 28, 29 and 30, 1913. Pittsburg proved to be a fitting place to meet for many reasons. The Shenley Hotel is situated upon the University grounds, free from noise and smoke. The sessions were held in the midst of an enthusiastic university spirit. The Carnegie Institute was especially interesting to a body of teachers. Pittsburg is easily accessible by train from all parts of the continent.

Thirteen years ago the Institute met in Pittsburg. The sessions were then held in a down town, dirty, noisy hotel. The dental school was then a proprietary institution situated over stores on a noisy street. What a change in a few years! At present the Dental Department is one of the aggressive factors in university life. The new building is situated upon a hillside near the medical building, with a cluster of all the other university buildings about. The president both privately and publicly expressed feelings of pleasure and satisfaction in having dentistry an integral part of the university. From the dean to the janitor, every member of the dental staff is a centre of enthusiasm. The city of Pittsburg and the western part of Pennsylvania are greatly influenced by the university.

If every change from a privately-owned and conducted dental school to one conducted by a university be productive of even half the good shown in this case, there will be greater advances in dentistry in America in the next ten years than during any previous period.

H. E. Friesell, in his president's address said that the day of the privately owned dental school had passed except in very special cases. No one has had a better opportunity to observe the difference, he having worked under both. There are only a very few proprietary dental schools left in the United States. The cost of dental education is greater than the student can afford to pay if teachers are to be paid for their work.

It would seem that the dental schools of the United States are likely to come to a four-year course. The strongest argument against it is the fact that there are not enough students entering dentistry to fill the ranks of those falling out from death and retirement, not to mention meeting the greater demands of the public. However, in New York State there seems to be an increasing number of students entering dentistry and it is intimated that the Board of Regents in that State at least will immediately go to four years. The Canadian dental schools have stayed by the four-years course since 1903, when all the schools of America agreed to begin. There will never be any shortening of the time in Canada, and we can assure our friends across the line that the time is none too long to meet the increased demands of the present day.

The president in his address directed attention to the need of original research work in dentistry. This expression is one of the most hackneyed in the profession of dentistry and expresses as many different ideas as those who use it. Some have the idea of designing new appliances, others testing the usefulness of those now on the market, others discovering new methods of practice and new materials, others testing the physical properties and manipulation of those in use, others studying the normal and pathological conditions found in the human mouth.

For some years the New York State Dental Society has had employed one man who spends all his time at original research work. Recently the National Dental Association has made an organized effort to employ several workers in the field. The scheme is to get annual subscriptions from dentists and dental organizations. So far the effort has met with unqualified success. Its weak point is the annual subscription. It can never be permanent upon such a basis. The expectation is that the Carnegie or Rockefeller funds will come to their aid when the need is shown. Several universities have offered the committee having the work in charge, a free use of their full equipment for the work. At present there are several universities with a full corps of investigators working on dental problems. Michigan University is foremost among these. The National Dental Association might consider the Canadian profession joining hands with them in its laudable work. The wisdom of this would have to be seriously considered from all its points. Our conviction is, that if anyone seriously pointed out a useful work along dental lines the universities in Canada would gladly take it up.

At the present time there is little known of the diseases of the mouth, and there is more clinical material going to waste at the infirmary of the Royal College of Dental Surgeons than there is used. Patients are received for mechanical treatment and if this relieves any pathological condition present well and good. Not one-tenth of the material is used beyond the restoration of lost parts.

Dr. Greeves presented a paper on the teaching of dental pathology which pointed out many shortcomings in present methods and directed the way to improvement.

Teaching of dental economics was presented by Koch of Northwestern University. No better exponent of the subject could have been found, but, like many another, he read a paper on the subject rather than how to teach it. This subject is of sufficient importance to have a place on the curriculum of every dental school, but there is a danger of its being taught rather from the making of profits out of patients than economy in management of a practice.

Art in dentistry was presented by Joseph Nolin, Montreal. It was well presented and made a decided impression. We hope to publish this paper later on.

A general criticism of the programme is the tendency of making discussions too long and really another paper on the same subject. Many of the papers are discussions of the subject in hand as if being delivered before a dental society, having little or no reference to the teaching of the subject.

The next meeting will be held in Buffalo, N.Y. Dr. A. W. Thornton was elected a member of the executive board. A new commission was appointed to study operative technic with a view of improving methods of teaching this important subject.

Dr. Childerhose, Ottawa, found it necessary to forcibly expel a man from his office for insulting language. The police magistrate fined him for assault.

Dr. Walter Sleeth, who practised in Toronto for several years, was recently killed in a railway accident in Vancouver, B.C.

ARE WE LIVING IN A FOOL'S PARADISE?

If one would judge from what is going on in the medical profession here and abroad and in the dental profession abroad, Canada must be the promised land in which to practise dentistry. It is surely a haven of comfort. The millennium must be here. There are no troubles of process patents, mechanical patents, illegal practitioners, malpractise and blackmail suits.

At the present time and for the greater part of the past thirty years the profession of the United States has had its troubles with process patents. Patents were taken on crown and bridge work and vulcanite, which forced every dentist who wished to make a crown, bridge or vulcanite denture pay a royalty to the Tooth Crown Company or the Goodyear Rubber Co. The position of the dentist became so intolerable that many were sent to jail, murders were committed and forced resistance was made against these agents of these companies. The Dental Protective Association was formed to fight in the courts every case brought by these companies against a dentist. The result was the patents became useless or were declared invalid by the courts. At the present time there is the Taggert gold inlay patent, which is agitating the profession. If this patent is proven valid every dentist in the United States who wishes to make a cast gold inlay will have to pay tribute to Dr. Taggert or his company. Through all of this the Canadian dentist has had little or no interest. He has had to pay royalty to no one. There is no need of a dental protective association to fight process patents. Even the mechanical patents as on dental appliances do not hold good in Canada, unless manufacture takes place within two years. The chair, the engine, the lathe, the vulcanizer, the everything may be made here without hindrance

In many parts of the civilized world dentists are still striving to evolve a dental act which will prevent illegal or unlicensed dental practice. In England any person may practise dentistry so long as he does not call himself a dentist. There is no adequate dental act. There are less than five thousand registered dentists and over thirty thousand unregistered. In Canada there are no organizations to promote dental legislation or to fight illegal practice. There is no need of it. There are dentists enough at present to meet the demands of the people. There are no illegal practitioners because the public would not consult with them for the want of confidence in their skill.

At the present time the medical profession are applying to the House of Commons at Ottawa, for an act to incorporate the Canadian Medical Protective Association. In England a Dental Protective Association has existed for many years. The objects of these associations are set forth, "to give advice and assistance, to defend and assist in the defence of members of the association where proceedings of any kind are unjustly brought or threatened against them. The dental profession of Canada has no such organization. The need has not been apparent or one would have been formed. It surely speaks well for the dentists of Canada and the people if dentists are so rarely attacked for malpractice or blackmail, that no defence organization is necessary.

Is it possible that all these blessings have come to Canadian dentists by accident, or by the forethought of our predecessors, or by the equitable laws of our land? Or might it not be that there are not enough dentists in Canada to make it worth while for some large company to get patents and collect royalties. Or have dentists not been recognized as worth while to attack for malpractice or blackmail? As one observes the records of the courts these latter suits are becoming more frequent. There is no class of men in such a defenceless position as dentists in cases of blackmail.

It might be worth while for the Canadian Dental Association to appoint a committee to study carefully all these blessings we enjoy for fear that as we increase in numbers and importance our birthright might be filched from us. As soon as we are discovered as worth while the patent monger, the quack, the blackmailer, and the damage suiter will make his appearance. In times of peace prepare for war.

THE CIVIC DENTAL CLINIC IN TORONTO

We have announced on more than one occasion that the civic clinic had begun in Toronto only to find that some hitch had occured to still further delay it. It is now almost two years since the principle of the clinic had been agreed upon by the city council and the Board of Health. It is one thing for a council to agree on the principle and another to provide the necessary funds and still another for the Board of Health or the Medical Officer of Health to really establish such a clinic. In every new thing there are so many differences of opinion as to what is the best plan and there are often so many people to satisfy and others not to offend that progress is necessarily slow. The public, the city council, the Board of Health physicians and some dentists were hard to persuade that a dental clinic can not be run as a medical clinic is. That is if the building and equipment were provided the dentists would do the rest. This plan is not feasible and will never be permanent. A dentist cannot make a living and give much of his time outside of his office. He can be a consultant to a clinic to give advice, but to actually do the work is impossible.

The civic dental clinic in Toronto has begun properly and will ever stand as a monument to those who stood out for nothing short of the city council shouldering the full responsibility. It is not a charity depending upon the donations of anybody. There is nothing about it done for charity, "for the good of the cause," or for nothing. Every dentist, nurse and helper is paid. Those who receive the services are getting them as their right as citizens of Toronto. Isn't this socialism with a vengeance right in Ontario, where tax reform is tabooed.

At present the clinic is located at the corner of Yonge and Grenville streets. It is presided over by Dr. J. A. Bothwell, who has had many years experience in general practise, and as a demonstrator and instructor in the clinic and laboratories of the R. C. D. S. He devotes three and a half hours each day to the clinic. He has five associates who give an equal amount of time. The clinic opens at 9 a. m., and closes at 5 p. m.

The equipment of the clinic, which cost in the neighborhood of fifteen hundred dollars, was provided by the donation of Sir Edmund Osler, the dentists of Toronto, and the dental supply houses.

There can be no turning back, no sidetracking, no bickering, no misfortunes to mar its progress, it is as much a part of the civic machinery as the city council itself.

The medical officer of health has been fortunate in securing Dr. Bothwell as chief, and Dr. Bothwell has been fortunate in securing Dr. Margaret Gordon, Dr. Wagg, Dr. Thornton and Dr. Madill as assistants.

At the present time there is much talk of beginning dental clinics in other parts of the city. The Board of Education has a bee in its bonnet. It would be far better to allow the Board of Health to establish these outside clinics and place them all under one management.

NOTE:—The Board of Education of the City of Vancouver has set apart $1,000 to make a beginning in the care of the teeth of the poor children of that city. The Canadian Oral Prophylactic Association is sending the oral hygiene committee a full set of slides, charts and diagrams to illustrate public lectures, on the care of the teeth and mouth.

MOTION PICTURES.

The Woman's Canadian Club, of Waterloo and Berlin, Ontario, was the first to see the motion pictures illustrating oral hygiene in the public schools. The film was presented under the auspices of the Canadian Oral Prophylactic Association. It takes twenty-five minutes to run the film through. Dr. A. J. McDonagh, Toronto, delivered an address on care of the teeth before the picture was run through.

The Elgin Dental Society has made arrangements to have this film shown for a week in one of the local theatres. This same film will be shown at the annual meeting of the Ontario Dental Society. Any dental organization in Canada can have this film for teaching oral hygiene.

ANNUAL MEETING, ONTARIO DENTAL SOCIETY, TORONTO, MAY 12, 13 AND 14, 1913

The annual meeting of the Ontario Dental Society will be held on the 12th, 13th, and 14th of May, next, in the College building, in Toronto. The committee has endeavored to put on papers on practical subjects, and has been fortunate in securing men of exceptional ability to handle the subjects.

Dr. Geo. E. Hunt, of Indianapolis, editor of "Oral Hygiene," will give a paper on "The Economic Value of a Clean Mouth," and will illustrate it with motion pictures.

Dr. J. Wright Beach, of Buffalo, will give a paper on "Special Attachments for Partial Dentures," to be illustrated with stereopticon views.

There will also be a paper on "Mouth Indications of Syphilis," by a prominent physician. This will be accompanied by a large clinic on that subject.

A paper on "New Appliances in Dentistry," and exhibits of the various appliances, will be an interesting feature.

The Clinic Committee promises a large clinic on subjects of practical value. That committee makes an appeal to the dentists for clinics of every description. If you can help in any way with a clinic your assistance will be greatly appreciated. Please communicate your willingness at once to Dr. J. A. Bothwell, 604 Spadina avenue, the chairman of the Clinic Committee.

Note the dates—May 12th, 13th, and 14th—and come prepared to attend the best convention ever held.

ARTHUR DAY,
Secretary of Programme Committee.

DR. A. W. THORNTON GOES TO McGILL

Dr. A. W. Thornton, who has been professor of Crown and Bridge work in the School of Dentistry, Toronto, has resigned to take charge of the Dental Department of McGill University. For over ten years Prof. Thornton has been an aggressive member of the faculty of the R. C. D. S., never failing to take his share of the work and responsibility of the faculty council. While the R. C .D. S. recognizes his loss, it is at the same time a compliment to the institution to have one of its staff given control of a department of McGill which will shortly take quite as prominent a place in university life as that of Medicine, Law, or Engineering.

McGill has recognized the need of having some responsible head of the department giving the whole of his time to management and oversight and teaching. They have been fortunate in the choice of a man who is so eminently qualified for such a position. Dr. Thornton will take with him Dr. Renolds, a graduate of the R. C. D. S., as his assistant.

POST GRADUATE WORK AND DENTAL COLLEGES

There is no calling in life where there is such a demand for keeping up to date as in dentistry, and there is no calling in which there is such a tendency to get out of date. Dentists are separated from their fellows. There is little knowledge of or sympathy with his work in his neighborhood. His work in no way comes before the public. He works alone. At college he spends most of his time learning to do things and little of it in developing a power to meet new conditions. He has not been trained to read scientific literature. He cannot, as a rule, follow the scientific progress of his calling. He cannot see how he can apply such stuff to the things he was taught to do, never dreaming that the new scientific aspects of dentistry demand new and different methods of doing things.

In youth a student learns to do things with his fingers with comparative ease, but as he gets older he is less likely to develop fingercraft. Dentists a long time in practice, rarely take on new ideas. They must be forced upon them, hence the necessity of a course of scientific and technical instruction for those out in practice. The University or Dental College which contents itself with preparing young men to begin the practise of dentistry, does only half of its duty to the public. It is just as essential to the public to keep those in practice up to date, as to start the recent graduate properly. There are many young men who begin practise but poorly prepared and gradually get worse instead of better, not to mention keeping up to date. Has the public not a right to demand either the retirement of such a man or that those in authority should either keep him up to date or supply sufficient competent dentists to supply the demands of the public? The supply of dentists to care for the needs of the people of Canada is getting to be a pressing one. Since the incompetent can get all he wishes to do there is still a greater demand for dental colleges to conduct post-graduate schools. It is too bad that the expensive equipments of the dental colleges in Canada should be used only seven or eight months in the year, when there is such a need for post-graduate work. There is no reason why the R. C. D. S. should not conduct a post-graduate course every year in Toronto and a part of such course in each city of the province.

Dominion Dental Journal

VOL. XXV. TORONTO, APRIL 15, 1913 No. 4.

Original Communications

THE RETENTION OF ARTIFICIAL DENTURES

W. E. CUMMER, D.D.S., L.D.S., Toronto, Ont.

The establishment and maintenance of healthy oral conditions are the ideas uppermost in the mind of the dental and, to increasing extent, the medical profession of to-day, and in no branch of dentistry has this thought a more important and far-reaching application than in the design and construction of artificial substitutes for lost natural teeth. Therefore, in any discussion of the retention of artificial dentures, the health of parts affected by retaining devices constitutes a feature of equal importance with the actual retaining efficiency of the retaining device or means employed. And it might well be defined at the outset that the fundamental principles which should never be for a minute lost sight of in designing artificial dentures, and more particularly partials are the ease of patient in maintaining cleanliness, and non-interference by covering of the healthy conditions of any of the oral parts, especially the gingival margin and the interproximal spaces, as well as those principles underlying correct mechanical restoration of the functions of the lost parts and their artistic and harmonious replacement.

Artificial dentures are retained in their position in the mouth by the following means: Clasps, interlocking between teeth, and special interlocking devices available when natural teeth are present, and, adhesion, atmospheric pressure, gravity, extensions and (rarely) helical springs. Opposed to these agencies the following displacing efforts may be mentioned: (1) Displacing efforts of contracting muscles, which effect the periphery of the denture, and which may be largely overcome by giving proper outline first, to the impression tray and subsequently to the denture, avoiding these contractions. (2) Displacing effort occasioned by teeth (usually upper) set outside the ridge, converting the denture into a lever of the first class the power being the lower teeth, Fig. 1., the fulcrum the ridge and the work the displacement of the opposite side of the denture, which can be overcome by setting as many of the upper teeth inside the lowers as may be necessary, (which can be done anatomically) ; and gravity which is really a matter of ounces and is so little as to be practically negligible.

Clasps.

This much abused, yet widely employed retaining device is well worthy of consideration and when intelligently placed and properly constructed stands very close to the ideal in at least one respect, namely, no sacrifice of tooth tissue, and on the other hand if improperly constructed and used where contra indicated constitute conditions resulting in the loss of teeth next in rank of effectiveness to the dental forcep itself. The most frequent misconstruction is the half moon shaped clasp, closely following the gum line, setting up friction and micro-organic action (Fig. 2) at a part of the tooth least able to resist it, especially if there has been recession of the gums, the after "settling" of the denture takes place, burying itself in the gum at the free margin, setting up in addition to the foregoing, an acid excretion of the mucous glands of the oral epithelium which acts upon the tooth at a point in which the enamel is not present, namely the cementum. A more deadly combination making for destruction of the tooth by caries could hardly be brought together excepting this or similar agency. Coupled with this we have the very worst form of irritation beginning with the

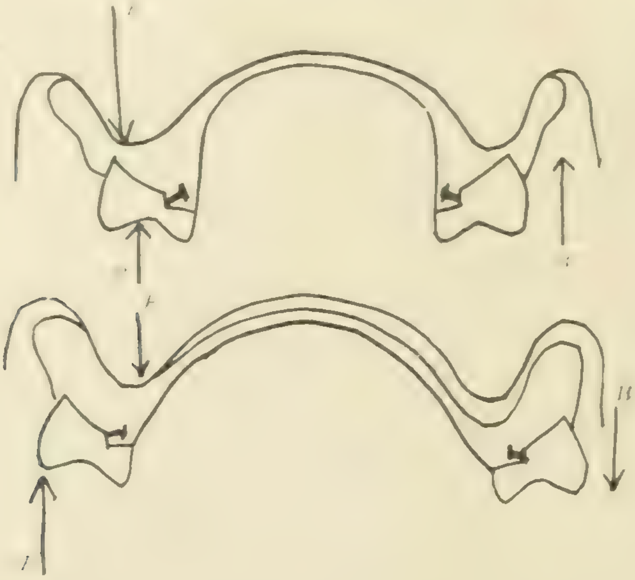


Fig. 1.—Setting teeth inside and outside of ridge. The upper cut represents teeth inside ridge. With pressure (P) from lowers on one side, coming below the ridge (F) which corresponds to the fulcrum of the lever, and the opposite side of the denture the resultant force or work is in an upward direction (W) tending to seat the denture more firmly in its position.

In the lower cut the teeth are placed outside the ridge and the pressure from the lowers, (P), coming outside the ridge, (F), results in a downward force or work, (W), which will unseat the denture unless sufficient facilities for adhesion are present.

formation of the septic pocket by the descending clasp, which begins the well known sequence of peridental troubles, ending in loss of tooth—in most cases a race for this distinction between caries and pyorrhea with the loser a good second.

This misconstruction has placed the clasp in disrepute, and properly constructed and applied where indicated are neat, comfortable efficient and simple, requiring no loss of tooth substance as do the newer interlocking forms of retainers, which will be subsequently considered.

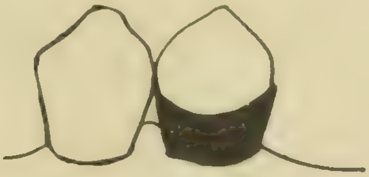


Fig. 2.—Faulty clasp construction. Half moon shaped clasp following gum line producing, especially if denture "settles," micro-organic action, and acid excretion of the glands of the oral epithelium at a point where the enamel is thin or absent ending in caries concurrent with peridental irritation ending in pyorrhea.

Indications of tooth for clasp is one of good length of crown, allowing of construction of a clasp well above the gingival margin, ensuring the non-interference of the healthy flow of fluids, and non-irritation of free margin of gum. A slight convexity or bell shape (Fig. 3) of the crowns not too close to the cutting edge allows the construction contoured to this bell, increasing its mechanical efficiency. Healthy peridental conditions are of course necessary, for a clasp puts extra stress upon these tissues and imperfections in the enamel or margins of the fillings should as a rule not be included by the clasp. Badly leaning teeh, teeth with poor enamel, cuspids, laterals and third molars occur among the contra indications which in most cases the interlocking retainers may be used to better advantage. In addition to these, clasps,

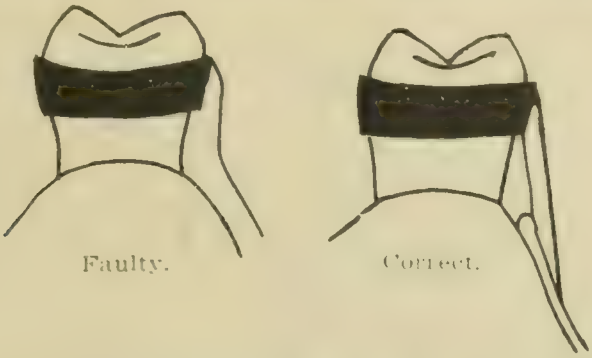


Fig. 3.—Showing form of tooth for which clasp may be successfully used, allowing of its location well above the gingival margin. On left hand cut the base is carried up on the tooth and the clasp attached to it, which faulty construction interferes with the tooth surface and gum margin thus covered. In the right hand cut the proper attachment of the clasp is shown: a bar soldered to clasp and attached to the base either by solder or vulcanite, the base having been previously trimmed away from the gingival margin, ensuring preservation of healthy condition by non-contact.

unlike some of the interlocking forms of retainers, usually require assistance of either another clasp or another form of retainer, on the opposite side of the mouth in holding a denture in position as nearly opposite as possible. The use of a clasp between two slightly separated teeth, should be undertaken rarely and not at all if any interference with the interproximal space will result, and is rarely necessary with the modern interlocking device. Conversely, clasps are indicated chiefly at either end of a series of teeth.

CONSTRUCTION.

As for the material, the platinum alloyed clasp metal seems superior to the others, they being able in most instances to retain the most of their "temper" after soldering. The metal may be formed around the plaster tooth with contour pliers and clasp bending pliers, or better on a Melotts metal cast made from an individual plaster impression (the work of a few minutes) which admits of the use of the light hammer. The pressure casting process may be used forming the clasp in wax and then in gold—care must be taken in the alloy used, otherwise the clasp will be too brittle. The main points in fitting the clasp are the use of the contour pliers in adapting accurately to the bell surface usually found, and the formation of clasp as far off the gum margin as possible (a pattern in tinfoil is useful in most cases before cutting the gold).

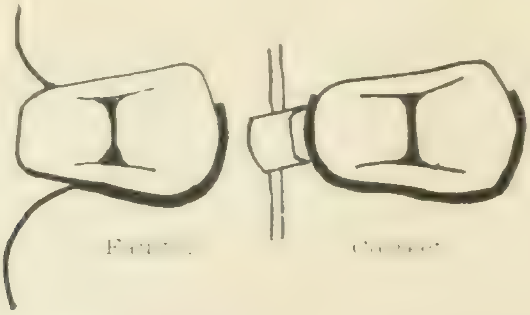


Fig. 4.—Showing plan of properly formed clasp. Left hand cut shows clasp connected with base which is in contact with tooth and gingival margin as in elevation of clasp in Fig. 3. Right hand drawing shows clasp attached to base by means of wire soldered to clasp, base kept away from gingeval marvin, and the clasp encircling from ⅔ to ¾ the circumference at the distal side of the tooth.

In the mind of the writer the clasp, in most cases should be carried around the lingual as well as the buccal side past (Fig. 4) the widest cross section (usually about 2/3 to 3/4 the circumference of the crown) and fastened to the base by a heavy wire of round or oval section soldered to the clasp on the lingual thus making it possible to keep the base away from any part of the tooth and from the free margin of the gum. The only point of contact between the denture and the tooth clasped being that part of the tooth touched by the clasp. In many instances a small projection of flattened iridio-platinum wire soldered to the clasp and carried up on the horizontal masticating surface (where the articulation of the upper teeth permit of this) prevents in a large measure the "setting" of the denture, which imparts to the clasp so much of its destructive possibility. (Bonwill clasp.)

INTERLOCKING DEVICES.

These as the name indicates consist of two elements interlocking the one into the other, one element being fastened to the natural tooth or teeth by crown, inlay and post, Carmichael attachment or other expedient means, and the other element attached to the base of the denture. The disadvantage of this form of retainer is obvious, destruction of tooth tissue, which of course is not a necessity with the clasp.

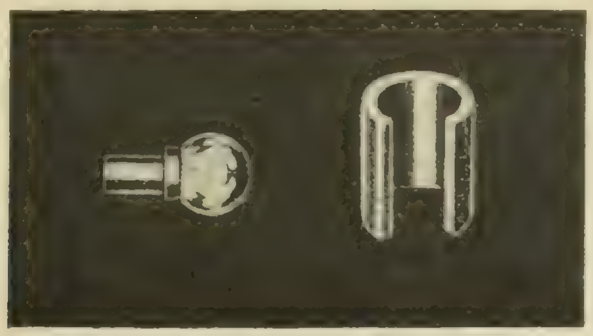


Fig. 5.—Roach attachment.

In one of the classes of these devices parallelism of the elements is necessary as the Condit, Griswold, Morgan and similar devices. Any deviation from the parallel, either before or after insertion affects their efficiency and limits to a certain extent their application. In the newer forms of attachment this absolute parallelism is not necessary. In the Roach, the elements of which consist of the ball and split tubes (Fig. 5) and the Gilmore consists of a 14 gauge wire following the crest of the ridges (Fig. 6) attached directly or indirectly to the natural tooth or teeth, and a small winged clasp to grasp this, imbedded in the ridge side of the denture. The latter two are perhaps the most widely used at the present time and while they have only been before the profession a short time, reports of successful and amazingly varied applications of these devices have been placed before the profession, by the gifted inventors and many others.

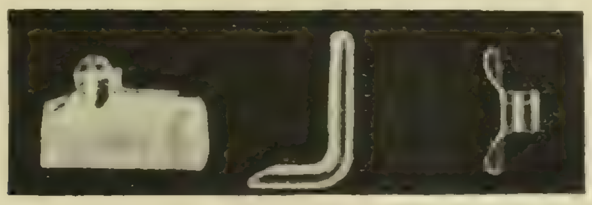


Fig. 6.—Gilmore attachment.

In restorations in which natural teeth are remaining affected with pyorrhea and in need of splinting, the Gilmore system, which has grown out of a similar system originated simultaneously by Drs. McDonagh and Fossume, is particularly effective. Inlays with posts or suitable attachments for the teeth having been made, and connected together with 14 gauge iridio-platinum or clasp gold wire, cemented to these teeth forms a rigid splint, in combination with the 14 gauge wire element of the Gilmore attachment, upon which a denture with the Gilmore attachment on its mucous membrane side may be made to snap with no unmistakable certainty.

Each of these forms of attachment, however, apparently have their limitations. If a Gilmore wire is placed upon a ridge that is soft or likely to absorb, the weight comes on the wire and its natural tooth anchorage just in proportion to that shrinkage, which results in either injury to the root or damage to the denture. This may be partly overcome by burnishing No. 60 tinfoil around the wires (in vulcanite work always vulcanize upon a model with the wires, crowns, etc., in position in the flask) and in swaged metal work by a metal lift under the reproduction of the wires of the attachment in the swaging cast. On the other hand the Roach attachment is designed to take up this shrinkage and is indicated in these cases.

Any discussion of any degree of completeness of this subject of interlocking retainers for artificial dentures would easily crowd out an entire evening and will not be attempted here. Sufficient to say that they give promise of affecting fundamental changes in what was previously considered good practice by reason of their effectiveness and sanitary possibilities.

INTERLOCKING BETWEEN TEETH.

In certain cases where there is a slight lingual lean of the posterior teeth V shaped dentures may be made, usually bearing one or more anterior teeth, to spring in and be retained by this slight dovetail past which the denture "springs" on insertion.

It is practically impossible to construct such a denture without affecting the health of the free margin of the gum, no matter how accurately made, nor how much the base of the denture is trimmed away from the remaining teeth, and this expedient is limited to a few temporary restorations, usually pending absorption, similar delay affecting more permanent restorations and should only be worn for short periods of time.

FULL DENTURES.

With regard to retention of artificial dentures to the edentulous mouth, the problem takes on a different aspect, and from the positive forces of mechanical interlock, and clasp action, we must consider the more intangible and sometimes elusive force, adhesion, also air pressure, gravity, springs and extensions, which make up the forces which retain dentures in the edentulous mouth.

ADHESION.

Adhesion is defined by the Standard dictionary as follows—a molecular force, or the result of it, by which certain bodies stick together.

Manifestations of the force are familiar to us all, i.e., the drop of water on the end of glass rod, adhesion between moist plates of glass, etc. In the latter we have a close analogue to the mouth, namely, adhesion of glass to film of water and water to other plate of glass, which parallels the adhesion between the mucous membrane of the mouth to the film of saliva between the base of the denture and the mucous membrane of the mouth, and the adhesion between the saliva and the base. Adhesion in the mouth depends on three things: First, the area of adaptation, second, the character of the liquid medium, and third, the accuracy of adaptation. That adhesion is directly proportional to the area of adaptation is readily shown in the lesser amount of adhesion between a full lower and the mucous membrane, no matter how well adapted, and a full upper, the full upper being approximately three or four times the area. The consistency of the saliva is a factor to a more or less extent, a normal saliva free from ropy mucous in excess furnishing the best medium.

The accuracy of the adaptation of the base of the denture is the one factor which comes directly under the control of the operator, and depending on the intelligence and skill shown is the adhesion of the finished denture. A properly adapted denture should follow the contours of the surfaces to exert even pressure upon the tissues of that part of the mouth upon which they rest, which are usually of a varying density, and in addition to this, should possess a margin exerting perhaps a little more pressure than the central portion of the base, so that when moistened and pressed home, which squeezes out the mixture of air and water between the base and the mucous membrane, sufficiently tight contact is made between the margin of the base plate and the mucous membrane such as to prevent its return in between the two, valve tight, as aptly described by Dr. Greene, in his book. In addition to this, if there is no rocking movement, steps to prevent which will be mentioned below, maximum adhesion should be present, to overcome which will be possible, with great difficulty, vertically downward at right angles to the force of adhesion and possible only with any degree of ease horizontally forward parallel with the force.

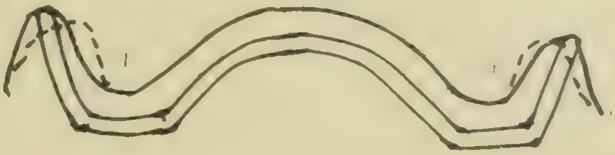


Fig. 7.—Shows error produced by the use of impression trays with too high a rim. In inserting such a tray the face mucous membrane on the buccal and lingual sides of the ridge are drawn away from their natural position of rest, (the dotted line showing the position of rest), and a denture made from such an impression will lack adaptation buccally outward from the points above which the mucous membrane was drawn outward, at A A.

The first precaution necessary to procure a high degree in adhesion lies in the care and pains given to the selection and preparation of the impression cup. The rim should not be high enough to draw out the mucous membrane as it leaves the aveolar process and merges into the cheek (Fig. 7) yet should be sufficiently high to carry the material up to the height required. It should be trimmed to allow contractions of the muscles, and to accommodate the frena in the resting position. It should, in addition to this, be shaped or formed to allow at least one-eighth of an inch of impression material between it and the tissues. The handle should be bent down to accommodate the contraction of the upper lip during the impression taking, or better still, be removable, as in Dr. Greene's impression cups, made in Detroit. The test for a properly adapted cup is its insertion under light pressure sufficient to bear its weight, and its non-interference or non-dislodgment in the mouth while the patient makes contracting movements about the mouth seeking to throw it out. In the experience of the writer this in many cases can be more easily accomplished by constructing a special tray on an approximate model, previously made usually with compound by adding three layers of soft wax, vaselining, and forming a hard wax pattern for the tray over this, subsequently casting in pure aluminum (Fig. 8).

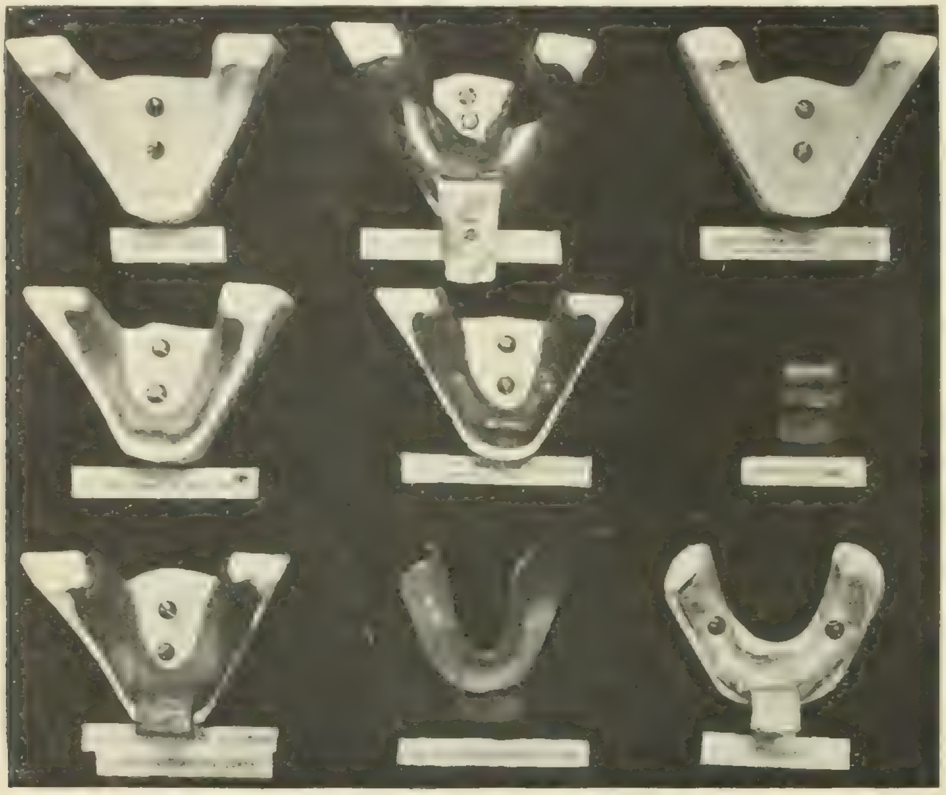


Fig. 8.—Steps in construction of special tray for lower mouth cast in pure aluminum. An approximate model is made, outline secured. Two layers of soft wax added and vaselined, then a third in hard wax added, removed, and wax handle added to it, invested and cast in pure aluminum.

IMPRESSION.

In securing an impression which will produce a denture of the maximum adhesion, the first requisite is an impression which puts the parts involved under that pressure they would be subjected to under function and this without distorting the soft tissues. It is the non-observance of this fundamental principle that is responsible for many failures made from the ordinary soft plaster impression, which in the opinion of the writer, is indicated for very few edentulous mouths, those in which the density is uniform and in most of these there are better means, which condition will be supported later.

In discussing the selection and mode of handling impression materials the variations in the upper mouth naturally divide themselves into three classes, namely: First the mouth in which extremes of density of surface tissue are not present; second, the mouth in which extremely soft tissue is present, and thirdly, the hard dense bony mouth. In dealing with the first class the writer finds satisfaction in the use of the compound impression subsequently used as a tray carrying the plaster of the final impression. The tray is prepared and the compound impression taken in the usual way and held up with the index finger of the left hand while the patient is instructed to try and dislodge it by means of the muscular movements. The contracting muscles "trim" this as described by Dr. Greene, by pressing themselves in the soft edge of the compound thrown up on either side. The impression is removed, the compound trimmed to thin edge along the margin, the impression is reheated (by pouring hot water from a spout) to the depth of one-eighth inch or thereabouts quickly returned to the mouth

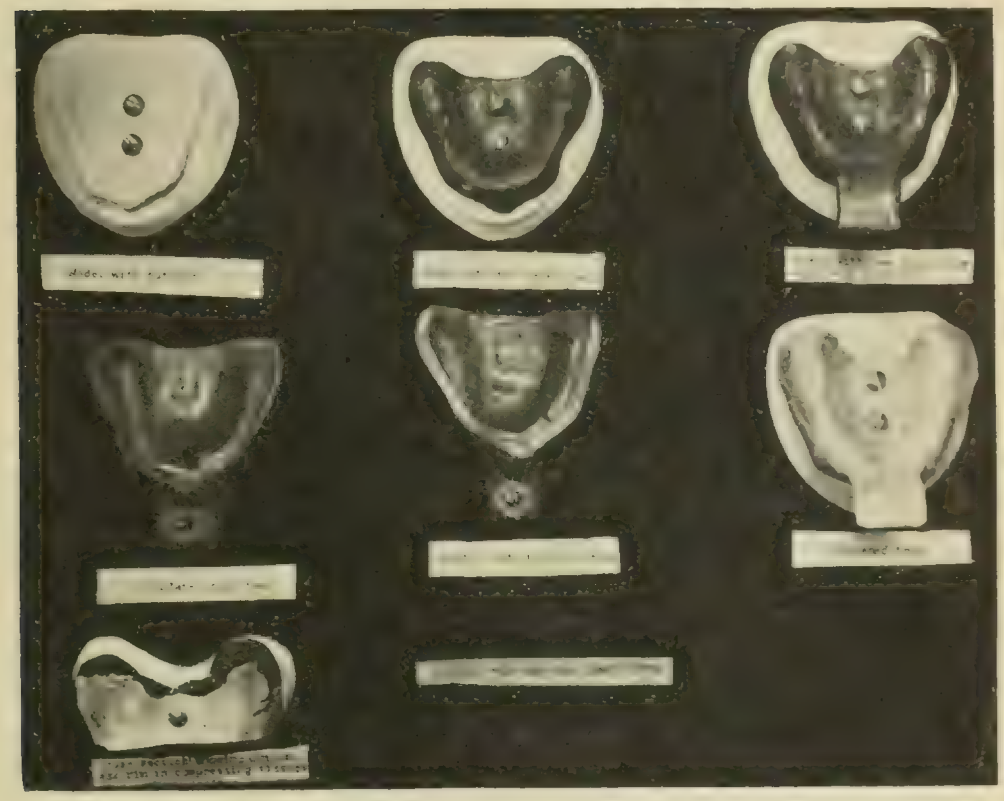
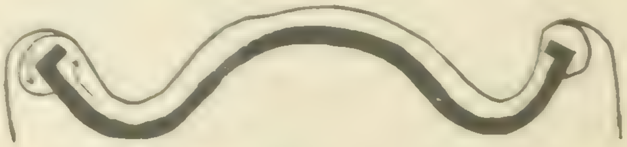


Fig. 9.—Showing steps in constructing special tray for hard bony uppers for ensuring tight approximation at periphery. Technique same as Fig. 8, except wax rim added, construction of which is shown in Fig. 10.

under considerable pressure and patient instructed to repeat these muscular movements, and while the compound is still warm, the left hand is pressed on the lips and cheeks to press the compound against the buccal and labial sides of the ridge. This is removed and enlarged slightly over the vault portion without destroying the margin, a teaspoonful of soft plaster introduced evenly into the impression and the impression retaken. This method includes the pressure exerting qualities of the compound with the accuracy of the plaster, and gives uniformity in successful results when the models are compensated as indicated below.

For the second class of cases, in which an extremely soft element is present for which swaging is not indicated, the same technique is followed as before with the exception that the space in the impression occupied by the extremely soft area is enlarged sufficiently with a rubber scraper to admit about one-eighth inch of plaster, which, when the plaster coated compound impression is returned to the mouth, presses it in on this soft mass from all sides condensing it, and thereby utilizing it in a measure to support the denture.



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For the third and incidentally the most difficult class of case the hard bony mouth special preliminaries are required to produce an impression which presses tightly around the margin, and which puts pressure from all directions, ensuring a capillary film of saliva between the base of the denture and the tissues of the greatest possible thinness and uniformity while the denture is under masticatory pressure which combination spells great adhesion.

For these cases the writer constructs a special impression tray after the following manner. An impression and model secured and the outline of the denture accurately secured from the patient. Three thicknesses of soft wax are laid over model and waxed securely to it, then vaselined, and another thickness of hard wax is fitted to it. This is removed, a handle added to it in wax and a narrow rim about 2mm. in width added which would turn back in towards the alveolar ridge when the tray is in position in the mouth, and the wax pattern invested and cast in pure aluminum. (Fig. 9.) Into this tray compound is introduced, an impression taken, the right-angled edge turning the soft compound in against the tissues, confining it and giving an extremely tight diagonal result. This may be removed, re-heated with hot water on its surface for about one-eighth inch, and returned until adhesion in impression is satisfactory. (Fig. 10.)

The formation of the plaster model deserves a sentence or two. The use of a rapid drying separating varnish allowing the model plaster to be poured quickly into the impression, the stirring of plaster not in excess of ten seconds, avoiding expansion, and the building of sufficient material over the vault portion to prevent warpage are all essential preventatives in avoiding distortion.

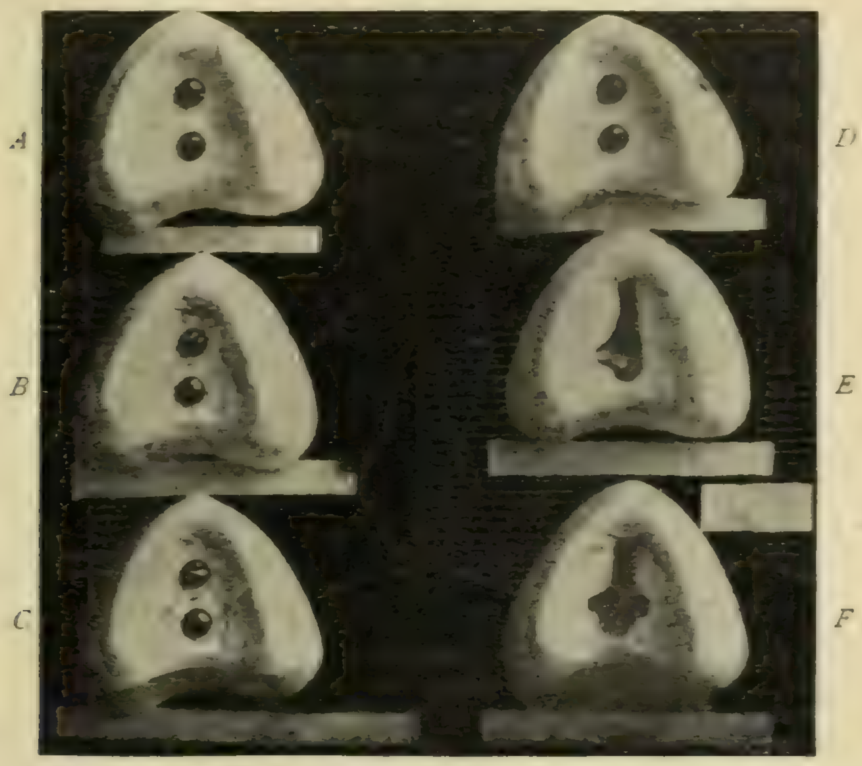
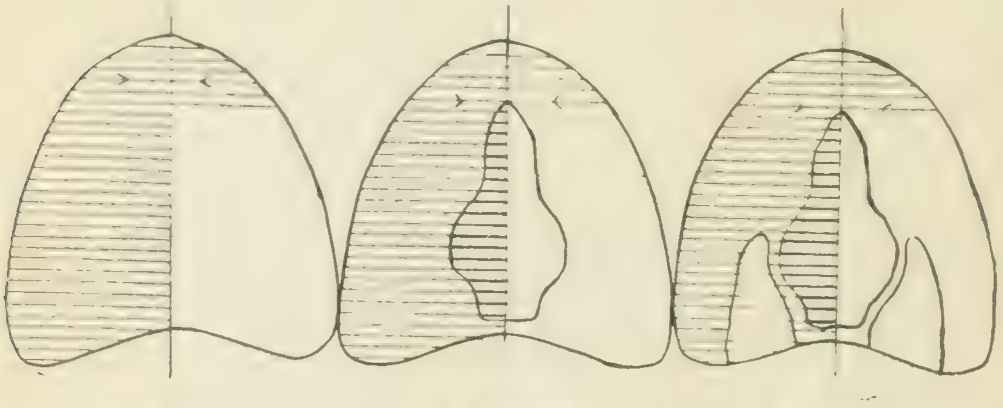


Fig. 11.—Showing compensating treatment for models of vulcanite.

(a) Model for one density vault.
(b) Treatment for one-density vault (none).
(c) Model for two density vault.
(d) Treatment for two-density vault (metal lift corresponding to hard area).
(e) Model for three density vault.
(f) Treatment for model of three-density vault (metal lift and soft area scraped).

Despite all pains and care exercised in the technique up to the present, maximum adhesion will not be obtained unless further cognizance of the hard and soft areas in every mouth in the vault portion be taken. Three classes of these variations present: First, the tissues of uniform density; second, hard area in centre, usually of irregular outline, with balance of tissue uniform, and third, hard area in centre, with soft areas on either side. For vulcanite work (Fig. 11) in the first class of uniform density no further treatment of the model is required; in the second class a metal lift corresponding to the outline of the hard area (which may be marked with lead pencil on the model from careful examination covering every square millimeter of the vault, Fig. 12) may be pinned after the fashion of the so-called vacuum chamber, and in the third, with a hard area and a soft area on either side the same, with the model scraped for the soft area, allowing the base to press more firmly at that point. In swaged work, a soft metal "lift" corresponding to the hard area may be waxed on the cast and the metal base reswaged, and for soft areas the plaster cast may be scraped, as in vulcanite, before making the swaging cast. In cast aluminum work, on account of the necessarily granular nature of the investment material, the hard area is scraped in the impression and the soft area added in thin wax to the impression. Just here the writer would like to express his preference from the standpoint of adhesion for the swaged metal base over all others, because of the opportunity for trying in and correcting compensation by an additional lift or bending of margin to correct any previous slight error in technique. In vulcanite or cast metal work the degree of adhesion is not known until the base is made, and then, generally speaking, if incorrect, cannot be corrected, but must be remade.



a (1 density). b (2 density) c (3 density).

Fig. 12.—In examinaton of mouth for hard and soft areas, a round headed instrument is held lightly in the hand and drawn across the vault as indicated by cross lines.o ne side at a time. from ridge to median line. In vault A no difference of density is encountered; in vault B the instrument climbs up a hard central area outlined in centre; in vault C hard area in centre and soft area on either side are detected.

Atmospheric Pressure.

It is possible by means of a vigorous effort to rarify the air in the mouth to one-half an atmospheric, or approximately 15 inches of vacuum, which means roughly that if a denture were worn with such a vacuum chamber of 1 square inch about 7½ lbs. upward pressure while these degrees of rarification lasted, providing there was no leak. Against this, however, one must deduct the loss of adhesion in this area, as well as the inability of the patient to maintain more than three or four inches of a vacuum in the vacuum chamber. The writer combines the principle with those of compensation of the hard area by cutting the "lift" or vacuum chamber (such as it is for the time being until the denture "setting" and it is filled with mucous membrane) to correspond with the hard area, combining a relief for the hard area and a vacuum space which assists the patient for the first few days until the proper adhesion is established. The soft metal is from 19 to 24 gauge in thickness, depending on the amount of difference of the densities in the mouth, and should the sharp edges prove irritating, may be smoothed down after the adhesion is established. Soft rubber discs derive their retaining effort from the same partial exclusion of air, but from their elastic nature seldom if ever approximate the base of the tissue over all the area, and are often irritating and unsanitary, and their use may be usually avoided by observance of the foregoing principles.

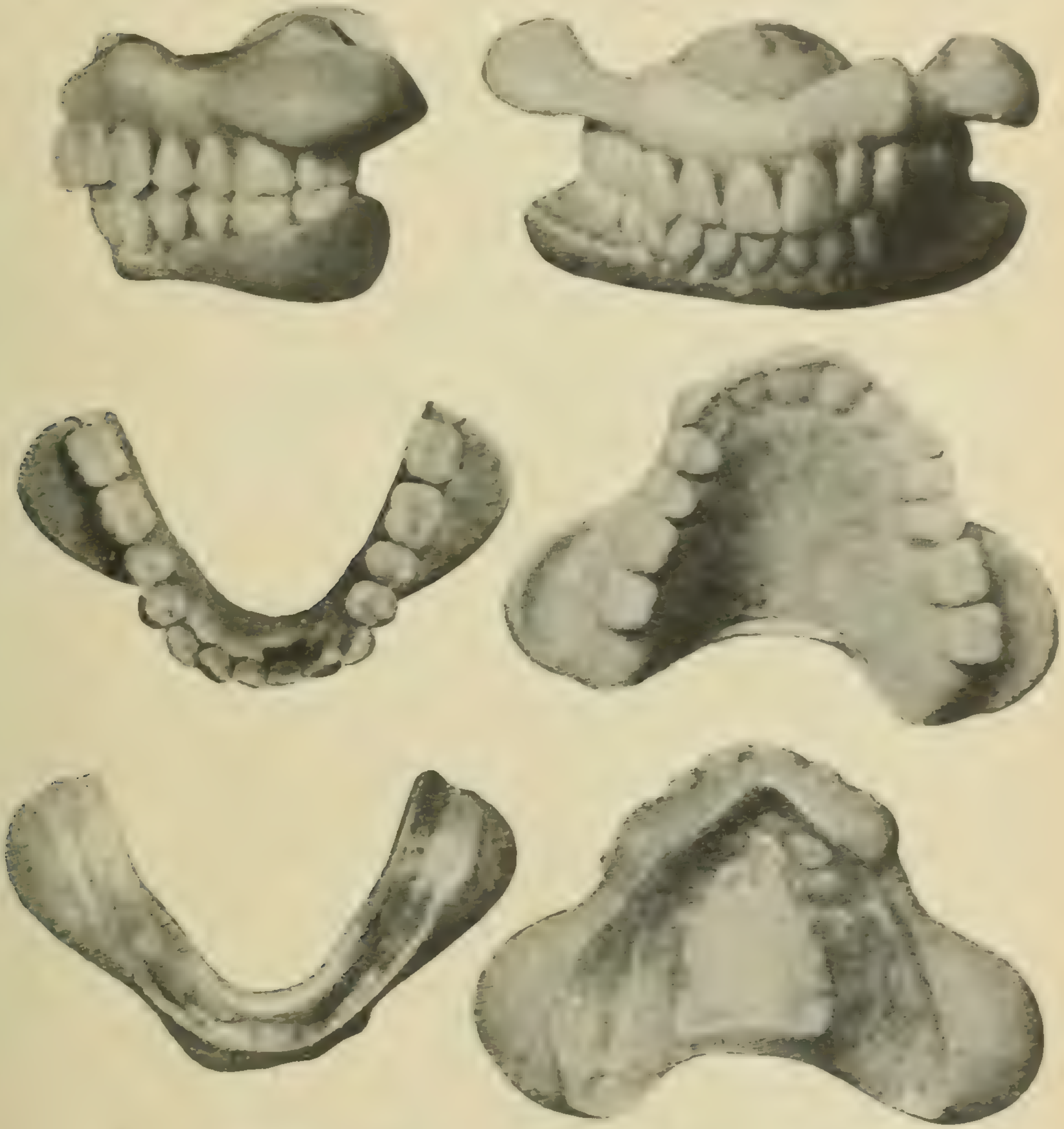


Fig. 13.—Showing views of a restoration made by Geo. H. Wilson, D.D.S., Cleveland, Ohio, in which extensions are successfully made use of, and described in "Some Phases of Construction of Artificial Dentures." Dental Cosmos, October, 1908.

Lateral extensions into the cheek and trimmed to avoid the masseter muscle are of great service occasionally. Although they distend the mouth somewhat uncomfortably for the first few days, a depression is established in the cheek which greatly assists the wearer in retaining the piece with a grasping effort of the cheek muscles when other facilities are poor or almost nil. (Fig. 13.) Helical springs attached to about the centre of gravity on either side are also occasionally used in similar isolated cases, but the lack of sanitation greatly minimizes their ultimate value.

In conclusion, it is the belief of the writer that, as a profession, we have entered upon a new era in the construction of sanitary comfortable and mechanically efficient appliances for replacing lost teeth, due largely to the great advances made in anatomical articulation, the introduction of the casting process, the improvement in the interlocking devices, and other signs of progress which perhaps do not loom up so large as the foregoing, yet the writer cannot refrain from expressing the hope of the profession that the growth of knowledge and application of principles of the preventatives side of dentistry may reach the point in the history of the world when dental conditions requiring artificial substitutes or even repair may be the exception, and that the chief work of the dentist may be the prevention of the evils after which now he is called upon to make repairs and restorations.

ANALGESIA

By Edgar Paul, D.D.S., Toronto, Canada.

Dr. Oliver Wendell Holmes coined the words "anæsthetic" and "Anæsthesia," but the origin of the word "Analgesia" is not known to the writer. The term "surgical analgesia" was first used by Dr. W. H. De Ford, and represents a stage in the administration of an anæsthetic which up to the present, has been taken advantage of to a very slight degree. In my opinion such development will take place in this particular phase of anæsthetics within the next ten years as to warrant many operations even in general surgery being performed in the analgesic rather than the anæsthetic stage.

Surgical Analgesia is possible for nearly every patient but the induction period, the available analgesia and the character of the analgesia is influenced greatly by any special susceptibility to pain, stubborn or doubting disposition, highly developed imagination or other mental peculiarities possessed by the patient. This stage, as is generally understood, is just at the commencement of the administration of an anæsthetic and according to most of the leading authorities, this has always been the most dangerous time at which to operate. Ideal surgical analgesia is a condition where the patient is conscious, able to talk, open or close the mouth when instructed, expectorate, but, even when the sense of touch is not abolished, there is no sensibility to pain.

As far as is known, Dr. A. C. Hewitt, of Chicago, was the first man to use any anæsthetic administered to the analgesic stage for surgical purposes. Some five years ago when in Chicago the writer had a very interesting interview with him, he being at that time a man 80 years of age, and he explained very fully how he began the use of chloroform for this purpose, fifty years before. Dr. Simpson, of England, had recently discovered chloroform and had administered it 10,000 times without an accident. Thinking he could do the same, he sent to New York for some chloroform; none there—so he then sent to London. After a long wait, two ounces arrived, costing $10, an amount he could ill afford at the time.

Dr. Hewitt was now in general medical practice in Mt. Clemens, Mich., and was also the leader in one of the choirs in the town. One Sunday morning, he was seized with a violent tooth-ache. Excusing himself, he went to his office and he began to smell the chloroform with the idea of relieving the pain. The pain ceased. He decided to lance his gum with the hope that bleeding would relieve the condition. He inserted the lance very deeply and having felt no pain, he did not see any reason why he could not extract the offending tooth. He grasped the forceps with both hands and after considerable manipulation the tooth came and he suffered no pain.

He said: "Here is a physiological and pathological fact—I extracted my tooth without pain." And he sat an hour and tried to reason it out.

After this, he secured a rooster which had been disturbing him a good deal in the mornings, and gave him chloroform. He got sleepy but was still standing and while in this state, he cut off each one of his toes, apparently with no pain, until all were removed, and then he gave him more chloroform and cut off his head.

His next patient was a French girl who could speak no English. After signs, they understood one another and he extracted her tooth by this method, without pain. In her innocent way, she expressed her gratitude by kissing him—a token which was highly regarded and was not considered lightly by Dr. Hewitt,as it showed the great appreciation of the result of a new discovery which since has been developed so marvellously. Patients are just as appreciative to-day, as the writer has had several patients, chiefly foreigners, so thankful for careful and painless treatment as to repeatedly kiss his hands as an evidence of their gratitude.

Dr. Hewitt began using this method in his obstretric work with great success and in time used chloroform administered to the analgesic stage for most of his general surgery. The other doctors clubbed together and told him they would not protect him if anything happened. He continued to practise in the shadow of the state prison until he had such a large practice, that these same doctors petitioned him to teach them his method.

Shortly after this Dr. Hewitt moved to Chicago to practice dentistry, and he performed every operation painlessly, administering it thousands of times, without the sign of an accident, and incidentally accumulating a fortune of $100,000. He explained in detail his method and, from personal chloroform has fallen, and the introduction of such safe anæsthetics as practice, it works admirably but, on account of the disrepute under which nitro oxide and oxygen and Somnoform, it seems preferable to use either of these. As far as is known at present, to Dr. Hewitt belongs the credit of discovering and introducing analgesia to the medical and dental profession.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS

The Thirty-first Annual Session of the National Association of Dental Examiners will be held at the Baltimore Hotel, Kansas City, Mo., beginning July 7th, at 10 a.m. and continuing until adjournment.

Every State Board holding membership in the Association is earnestly requested to have at least one representative present at this session. Members of all State Boards are invited.

Hotel reservations should be made immediately.

John P. Stiff, President, Frederickburg, Va.
T. A. Broadbent, Secretary, 15 E. Washington St., Chicago.

FRACTURE OF THE LOWER JAW

Reported by T. McGregor, R. C. D. S.

January 7th. Patient made his first appearance at the college. The case was diagnosed as a fracture of the inferior maxilla. The fracture was just anterior to the ramus on the right side, between the two roots of the lower R third molar, so that the mesial root was in the anterior fragment, while the distal root and the crown were in the posterior fragment. The fracture was caused by three persons turning on the patient and the result at the finish was the fractured jaw. The tissues about the point of fracture were pretty badly infected as the accident had occured four or five days previous to his appearance for treatment.

January 8th. The patient returned and after cleaning the mouth as well as possible compound impressions were taken of both upper and lower, just as they were without trying to adjust the fragments.

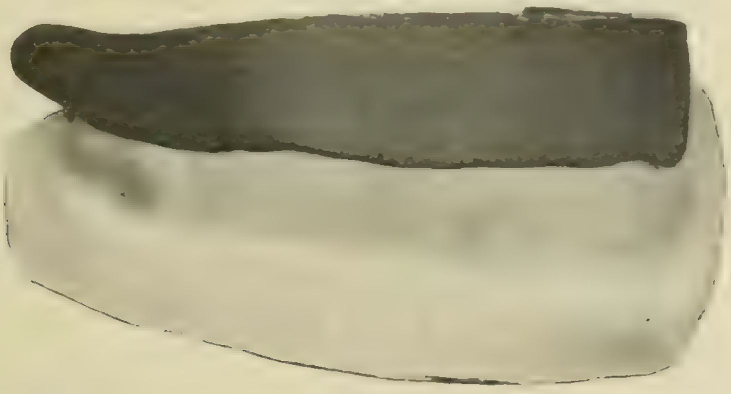


Fig. 1.

The models were poured, then we sawed through the lower model at the place of fracture, then placed the two parts so that they would be in normal occlusion by using the upper model as a guide. The parts were then waxed in position and mounted on an articulator with the occlusion normal. Over the lower teeth we burnished two thicknesses of the foil so that when the splint was finished it would be larger by the thickness of this tin foil and could be readily put down over the teeth when placing the splint in place in the mouth.

We then set the articulator apart so that there was about two and a half millimeters between the occlusal surfaces of the upper and lower back molars. Then we built up the space between with wax so that there was sufficient wax to close the upper model into this wax and get the occlusion of the upper teeth in the wax. Now we invested the lower model with the wax built up and vulcanized and polished it. (Fig. 1.)

January 10th. We polished off the teeth then dried them as much as possible and attempted to apply the splint without the use of an anæsthetic, but owing to the soreness we had to put it off until we could get the patient under a general anæsthetic.

January 11th. The patient was put under nitrous oxide, and with the use of copper oxophosphate cement, which was used on account of its slow setting, thus giving the operator time to adjust the fracture so that the occlusion was as near normal as possible. By standing behind the chair with both hands under the lower jaw and the splint filled with cement the lower jaw was pulled upwards until the upper teeth set into the bite on the top of the splint and the lower teeth in their normal relation in the lower part of the splint and held in this position until the cement was sufficiently set to hold the splint in place. (Fig. 2.)

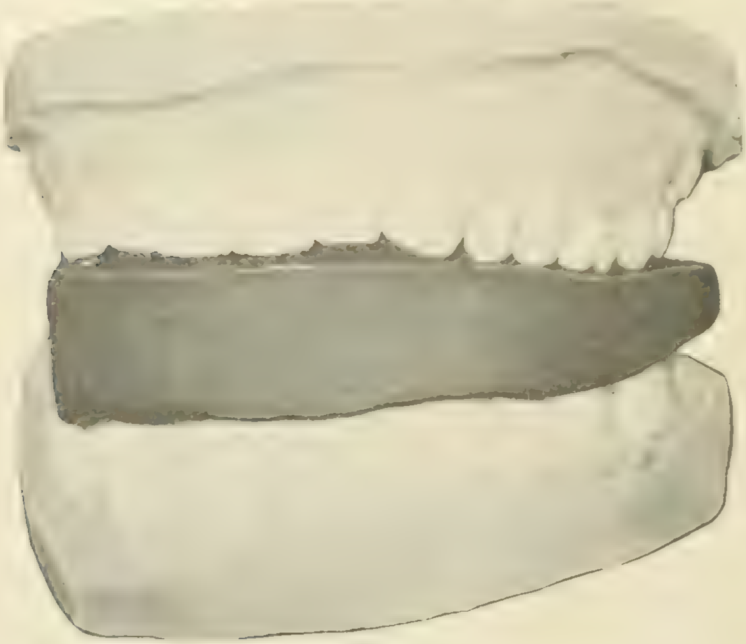


Fig. 2.

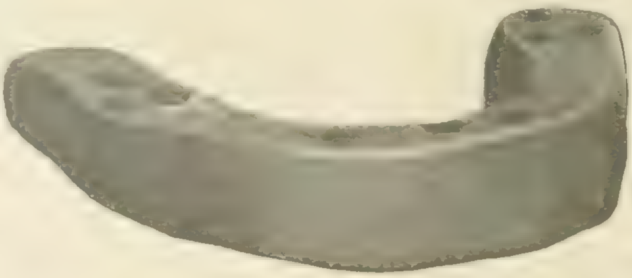


Fig. 3.

The patient returned every second day to have his mouth washed out with a boracic solution and was instructed to use the boracic solution himself between times. By the use of this splint he could masticate by using the occlusion which was on the upper part of the splint and which came in contact with all the teeth of his upper jaw. The splint remained on for four weeks, then by running a bur around the occlusal surface of the splint and down over the lower cuspids on each side the splint was removed as will be shown in Fig. 3, which shows the splint after it had been removed from the mouth and waxed together.

After the splint was removed the lower right third molar had become so elongated that we had to grind part of the occlusal away to allow the other teeth to assume their normal occlusion. We were afraid to extract this tooth for fear it might interfere with the newly formed tissue about the fracture. The next day when the patient returned the tooth had become more elongated so we cut off the crown with a fissure bur and left the roots there until we felt safe in removing them. After a week's time we extracted the roots and took impressions of the upper and lower teeth as in Fig. 4, which shows the occlusion of the upper and lower teeth after the fracture had fully recovered.

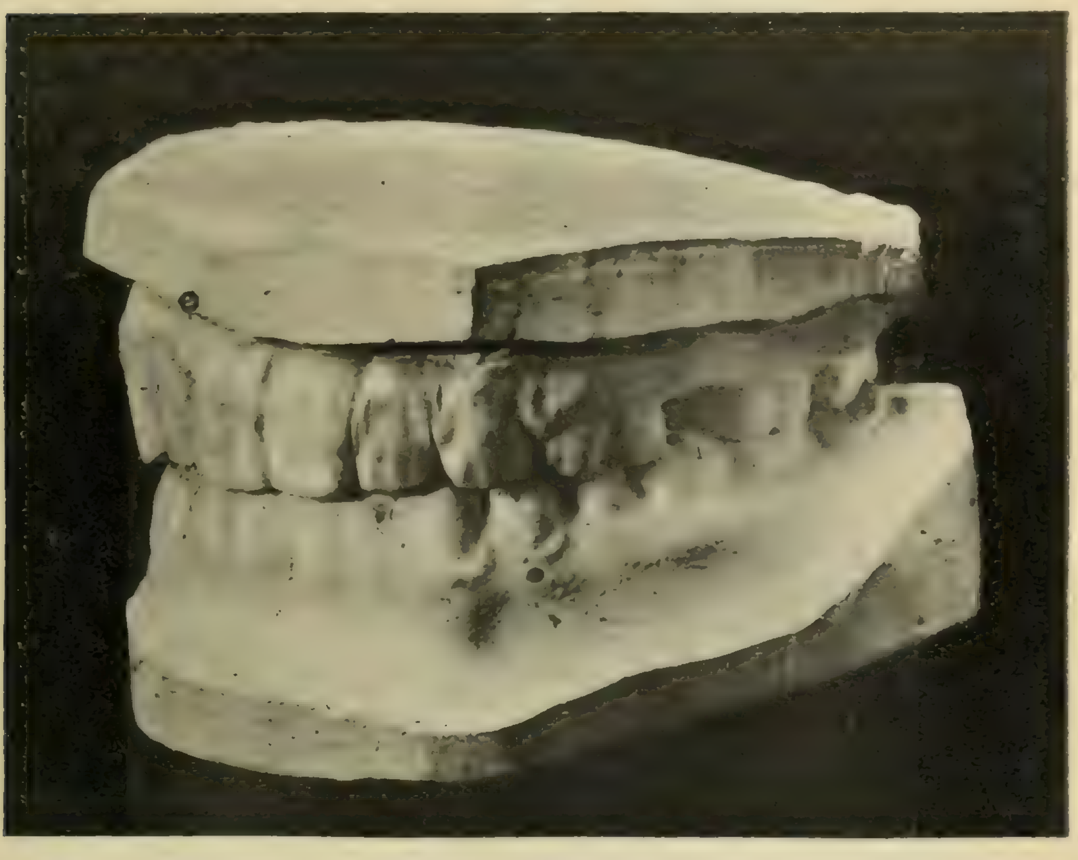


Fig. 4.

FRACTURE OF THE LOWER JAW

REPORTED BY HAROLD WALDRON, M.D., D.D.S.

R. T., agé, 53; caretaker. Admitted to Toronto Western Hospital, Feb. 11, complaining of pain and swelling at the angle of the lower jaw on the left side and inability to masticate food.

Duration: Five days since injury—fist blow.

On Examination: Slight swelling at the angle of the lower jaw on the left side—no deformity, articulation not quite correct—bite slightly open and lower teeth displaced to left. On palpation, crepitation could be felt and the fragments could be felt to move and slip into proper apposition, the movement causing tingling sensations to the left side of the chin. The position of the fracture was found to be distal to the 2nd molar, which was driven inwards completely out of its alveolus and its mesial root fractured and left in place. The crown with the distal root was removed.

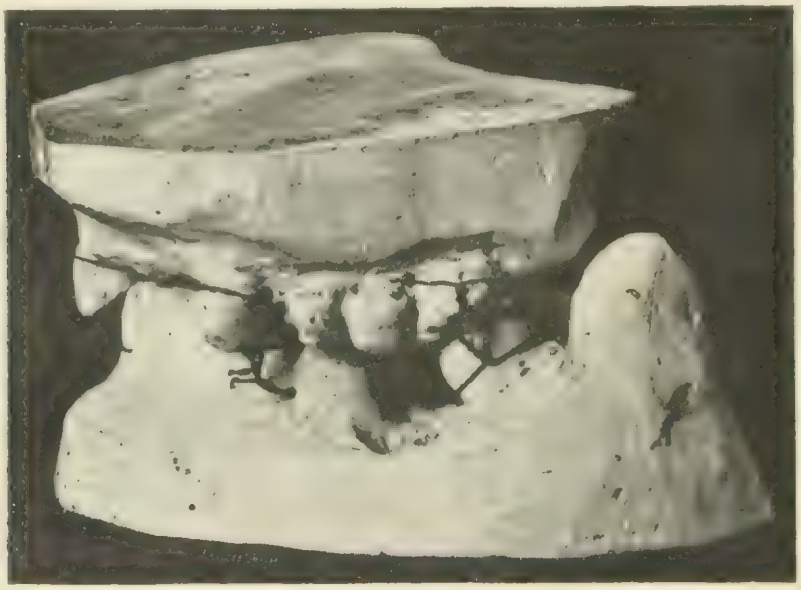


Fig. 1.

As the patient was suffering from a mild bronchitis with a troublesome cough, it was thought inadvisable to close his mouth completely until the cough had disappeared.

A crossed bandage was applied which held the parts fairly well and the patient was put on Glycrio Tupin Co. and fluid diet.

Eight days later (14 days after the injury), the cough had ceased. During this time the patient came to the hospital daily to have his mouth sprayed out with 1 per cent. carbolic solu. and he used a similar solu as a mouth wash.

On account of the distal position of the fracture, no appliance could be made which would hold the fragments and allow the patient to open and close his mouth. So it was decided to fix the teeth in front of the fracture in their proper articulation as the patient had ample room for taking liquid nourishment on account of the absence of the upper incisors and bicuspids.

Orthodontion ligature wire was used. The upper left 1st molar was ligated in the lower left 1st molar and the upper cuspids to the lower cuspids. (See Fig. 1.)

The wires were tightened when necessary and left in position for 16 days and the treatment as to spray and mouth wash kept up.

On removing the wire, the patient could open and close his mouth quite well, union was firm and articulation good.

There is still present some pain and stiffening when opening and closing the mouth. Considerable callous is present and below the angle of the jaw the tissues are quite indurated due to some infection. The anaesthesia of the left side of the chin is slowly clearing up.

IMPACTED THIRD MOLAR COMPLICATED WITH AN ALVEOLAR ABSCESS

Man, twenty-two years of age, carpenter, robust health, very large strong teeth, heavy mandible, twenty-eight present, several large amalgam fillings, no present caries, complained of several attacks of severe pain in the region of the lower left third molar, accompanied by soreness of the second and first molars on the same side. The first molar had a large mesio-occlusal amalgam filling which had been inserted several years previously. The pain and soreness became more severe and lasted longer at each successive attack. After about five attacks varying from a month to six months apart, there was some swelling at the angle of the jaw, and also a slight soreness on pressure over the apices of the roots of the first molar. The patient noticed severe pain when he pressed upon the second molar. The second molar responded to heat and cold tests while the first did not. The first molar was opened into and found to have been devitalized and the root filled. When the root filling was removed pus oozed into the canals. After the usual treatment for such cases, the symptoms passed away for some months when the second molar again became sore to bite upon, complicated with slight swelling at the angle of the jaw and opposite the roots of the first molar. A non-erupted third molar had been suspected to be the cause of the swelling at the angle of the jaw, but since it was so slow in eruption, it was thought wise to have an X-ray photograph made, which showed the third molar locked under the distal of the crown of the second molar and an abscess at the ends of the roots of the first molar. (See Fig. 1.)

The usual treatment of such an impacted tooth is to remove the second molar or cut down upon the third molar, bur away the bone and pry the tooth out. The latter operation is usually a very difficult one and not lightly undertaken. In this case the first molar was already diseased, so it was removed with the expectation that the second molar would tip forward and allow the third molar to erupt.

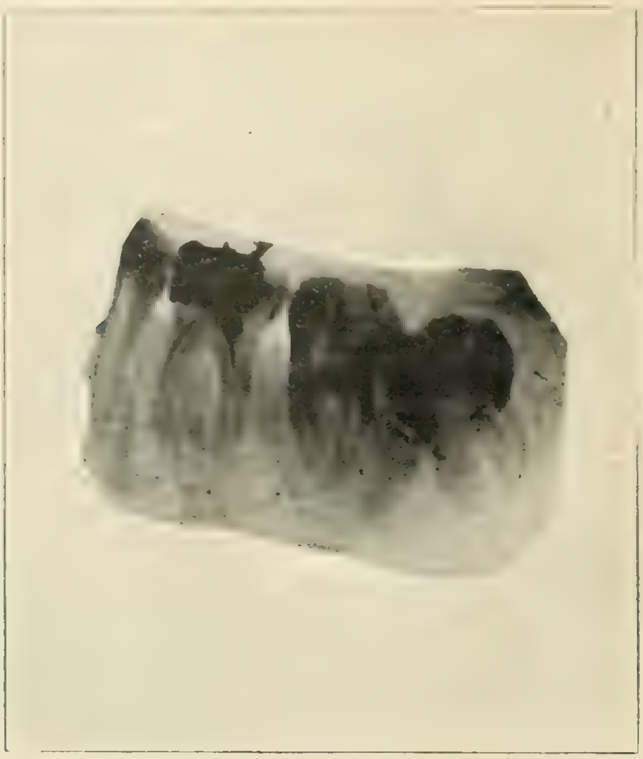


Fig. 1.

THE HENLEY COCAINE POISONING CASE

It was found difficult to find in the dental literature a case of the late manifestations of cocaine poisoning for a case recently before the court in Toronto. Below is the history of a fatal case reported in the Dental Surgeon, London, which shows both mental and physical symptoms occuring hours after the administration.

The case is decidedly interesting in many other ways. It shows how long may be the interval elapsing between the administration of cocaine and the onset of the symptoms. According to the evidence the deceased went in the morning to the dental surgery where she had cocaine injected, (the quantity can be left for the moment), walked home all right, and rinsed her mouth when she arrived indoors. Imagining that a root had been left in she went back and finding the operator out returned a little later. On her arrival home she made herself a cup of bread and milk and seems to have been first taken ill at about 5 o'clock; but even then after she had had her face washed she expressed herself as feeling better. Soon, however, she was laughing and talking incoherently, this being followed by collapse and retching. Next morning her breathing seems to have been very bad, in fact she did not speak again.

According to the operator he injected 15 minims or about 1-3 of a grain of cocaine, but his statement that adrenalin was not considered to be a poison, and that cocaine was purely local in its effects, are not calculated to command respect for any other of his remarks. Moreover, anyone with any professional education at all would have refrained from injecting for the extraction of very loose teeth for which ethyl chloride locally applied would have sufficed, if any such anæsthetic was called for, and, as was well pointed out by one of the medical witnesses, it was a great error to inject into sloughy gums, and where there were abscesses in the vicinity of the teeth to be removed. It is hardly necessary to point out that not only in such circumstances is there grave danger of setting up blood poisoning, but dangerously quick absorption of the cocaine, notwithstanding the added adrenalin, is highly probable.

With regard to the maximum dose of 17 minims, which would contain 1-3 gr., this does not seem to be unduly high according to what dental literature says on the point, though it is undoubtedly true, as another medical witness said, that as the result of fatalities dentists do not use such large quantities now as formerly. He was, however, a little at fault when he said that 2-3 gr. was the smallest fatal dose so far recorded. Not very long ago (October 15, 1910), we recorded a death at Watford following two separate injections of 1-8 gr. of cocaine at the same sitting. As these were performed by an L.D.S. Eng. there is no reason to question the accuracy of the alleged quantity.

"In many cases where rapid extension of an infection has followed the extraction of a tooth the dentist has been blamed on the theory that his instruments were not clean. There is no more justice in this than to conclude that because a peritonitis follows an appendectomy it was due to infection introduced at the operation. The infection from a tooth root spreads from near the apex of the socket, a part rarely directly reached by the jaws of the extracting forceps. Both the appendix and the tooth are removed because they are diseased, and the diffuse infection that may result is, in either case, due partly to trauma of the operation and partly to a lack of resistance to the infection."

Proceedings of Dental Societies

PRESIDENT'S ADDRESS

Donald M. Gallie, D.D.S., Chicago, Ill.

Read before the Institute of Dental Pedagogics, Chicago, January, 1912

Members and Friends of the Institute:

In looking back through the records of this association I find it was evidently the idea of its founders that as an organization its reputation was to be made by deeds, not words. For the first six years, I find the duty of the President was to do things, not say things, and consequently there was no time taken up with the reading and discussion of a President's address. As soon, however, as it became evident that the sphere of usefulness of this body should be enlarged and its name changed to the more dignified and comprehensive one, "Institute of Dental Pedagogics," a desire developed among succeeding presidents to outo all predecessors in addresses of wisdom, dictum and literary style. To the present incumbent there seems but little left to write about and he has no desire of being accused of writing thrice-told tales.

It is needless to say I deem it a great honor to be the presiding officer of this organization; I feel doubly pleased and honored that I should be president this year when the institute meets in my own city, for it gives me the opportunity in behalf of the teachers and members of the profession of this city to bid you a warm welcome, with best wishes for a pleasant and profitable sojourn within our midst. The profession in this city, as well as the dental teachers, are proud of this organization, for it was here that this body had its inception, inspired and stimulated by that peer of dental teachers, Dr. G. V. Black, and the presiding officer for the first two years of its existence was Dr. D. M. Cattell, a Chicago man. At no time in the history of this society, and its history is one of such usefulness that we may well be proud of, is there more need of progression than to-day. Nothing can stand still; it must either go ahead or go back; we are surrounded by forward movements, industrial, commercial, professional, scientific and social. The ideas and things of yesterday will not do to-day, and if not for to-day they surely will not do for to-morrow. Dental education has moved along, holding a prominent place in this procession and so it must continue. Many of us here can go back to the World's Fair year and survey the situation. At that time there was in all departments of dental teaching a great diversity of methods, but in no department was this so evident as in the practical, especially the operative. The head of this department in nearly every school had some pet theory and method of his own, and it naturally reflected in the profession in his state or section around that college. This may have been called individuality in teaching, but in the teaching of a practical subject scientific principles are of more importance than the individual. How different things are to-day in the practical departments,—the principles back of the teaching of orthodontia are largely alike throughout the whole country; in prosthesis we hear from ocean to ocean and from line to line about the teaching of three-point contact, the use of the face bow, the direction of the condyle path and the principles of crown and bridge work. In operative dentistry, if we are to judge from the exhibits shown in the past few years, and the literature of the day, we are all striving to teach the same principles only differing in minor details, and in the field of dental medicine and therapeutics we find nearly all working along the same line. This unification or standardization can be traced to the efforts of this body. It is thought by some that we have nearly reached perfection in the restoration of lost tooth structure, and in the making of crowns, bridges and artificial dentures, but gentlemen, the time has come when we must produce something more than finished artisans. Back of our practical work there are fundamentals which must be better understood and to-day our best thought and energy should be directed towards preventive dentistry and not curative. Is there not some justification for the structures of Talbot, Dray and Lovett? Why does the Virginia Legislature require the M.D. degree before allowing a man to practice dentistry in that commonwealth? Are we to remain satisfied with our ability to make beautiful fillings, crowns, bridges and dentures, and see them in many cases, a few years later, go to a scrap heap because the foundations on which they were built failed? May I ask, have we been devoting too much time, have we been placing too much stress on the importance of the mere mechanical side of our work? Who to-day in our ranks can give us a reason for the loss of so many teeth from some other cause than caries? We can count on our fingers the men who are doing any considerable research work. How many are there who really understand the relationship between mouth conditions and general diseases of the body? We are still waiting for the man to come forth and enlighten us as to the cause of erosion. Most of us are at sea as to whether pyorrhea alveolaris is caused by the deposit of serumal calculus from the blood or whether there must first be an opening at the gum margin, and up to a very recent date we were all ignorant of the real cause, the prevention or regulating of that very common condition, salivary calculus, and there are still some in our ranks who are skeptical about the etiology of dental caries. It was at a meeting of this body the last time it convened at Chicago, that a splendid discussion followed the presentation of a very able address by the president. Among other questions presented and discussed was what should be taught during the fourth year as the college course was to be extended the following year. The differences of opinion make interesting reading. Some advised a more thorough teaching of the sciences, especially scientific laboratory work, while others believed that a fourth year should be devoted entirely to the practical. I take the liberty of quoting a part of the discussion of one of our members, a man of the highest pedagogical attainments and most skillful as an operator, who said "We are striving to make too much besides practical dentists of our students. The tendency is to demand too much of them at the expense of the practical work in the operative clinic and the prosthetic laboratory. It has taken more than four years to make a Black, a Barrett, a Miller and a Brophy; all that the college can do is to lay the foundation and if the student is made of the right material he will complete his education in a scientific direction after he has received his diploma. I may surprise you by the statement, but I have the courage to utter it, that I believe we made better practical dentists twenty years ago than we do to-day."

This statement was made nine years ago and the four-year course, as far as the schools in the United States are concerned, fell through, and to-day much more is expected of the dentist than was expected of him nine years ago, and to my mind there is no doubt that the graduate of to-day leaves college a better practical dentist than the one who graduated any number of years ago. If they are not, our schools should go out of business and our efforts as a teaching body have been for naught. The teachers of to-day should be more capable of imparting and the student of grasping instruction than ever before;—this holds good in every branch of educational work, from the kindergarten to the possession of the master degree.

I saw a child a short time since, who had been but four months in the first grade of our public school, and who could read prose and poetry containing many words of three syllables. She was no prodigy, only one of many in the school who could do the same thing. Such a thing a few years ago was unheard of and to-day the student who graduates from our four-year high school has a broader knowledge than graduates of many of our colleges twenty years ago. And so it should be, for have not teaching facilities and the science of teaching advanced with the times? To-day many of our students come to us graduates of accredited four-year high schools, and all supposed to possess credits equivalent to three years of high school, and consequently should be capable of carrying more work than the boy who entered school a few years ago with only a grammar school record. Former students came to us without any knowledge of handicraft; to-day but few enter college who have not had experience in manual training and are capable of doing more technic work and in much less time than former students. We receive them with both mind and hand better trained and in condition to carry more work and we must give them more and maybe it will have to be at the expense of time in practical technic. What the dental profession needs to-day is more scientific men, and we must produce them. They must be men who will make dental teachers. The bringing in of medical men to teach many of our scientific subjects is a mistake. In the majority of cases they fail to give the dental student that which he is most in need of. We will take as an illustration the subject of histology: the average medical instructor of this subject knows practically nothing of the histology of teeth. I have the conviction that not a half dozen schools in the country are teaching this subject to the best advantage. I do not believe that any considerable number of dental students will complete their education in a scientific direction after they have received their diploma unless the seed is sown and well rooted in college. The dearth of scientific men up to the present time corroborates this statement. The time to start a man in scientific work is when he is a student, when he is impressionable and capable of being encouraged and influenced to work in scientific channels. With a foundation to start on and taste cultivated for this work, while young, he is far more likely to continue his scientific work to a successful end than the man who takes it up after his college course.

Not being familiar as I would like, and desiring to ascertain the time devoted to the teaching of the science, I requested the secretary of every dental college in the country to send me the 1911-12 college announcement. I succeeded in getting over forty, and I have devoted a good deal of time in the study of them. In the practical departments we are all teaching about the same number of hours, but in the department of physiology, histology, pathology and bacteriology and physical diagnosis there is a great difference in the time devoted and the years these subjects are taught. I have asked many medical men, mostly teachers in medical colleges, this question: What subject in the medical curriculum, aside from anatomy, do you consider most vital to the student? The invariable answer was chemistry and physiology; all the physiological laboratory work possible, more than one said. The student should first thoroughly understand the normal conditions before he can hope to understand and treat abnormal or pathological, and yet I find there are dental schools teaching physiology as though it were only incidental to a dental education. With the average dental student the study of chemistry is looked upon as superfluous. That they should take this view is hard to understand. Can it be that we fail to impress them with the most important side of the science? Do we over-emphasize the importance of the chemistry that applies to the mechanical side of our work? Many of the announcements state that special attention is given to the chemistry of the metals, amalgams, alloys and cement. This does not especially impress the student. He, of course, should know this phase of the subject, but is there not greater need of him thoroughly understanding the chemistry of the blood, saliva, gastric fluids, urine and food? Are our students getting the chemistry that will stimulate and aid them in scientific research and that will make disease understandable?

If our students are not getting advanced physiology and chemistry we cannot expect them to understand general pathology and bacteriology or dental pathology and therapeutics. Let us stop and look over this great field of pathology and its inseparable science, bacteriology. It involves practically every phase of dentistry; it has no limitations from early childhood to the end of life and yet a great percentage of our profession limit it to the repair of a carious tooth or to the treatment of a dento-alveolar abscess. But few dentists or medical men have an intelligent conception of the relationship of oral pathological conditions and the rest of the body. Occasionally, we are aroused when leading surgeons and pathologists declare that many operations and a large percentage of disease is traceable to bad oral conditions. Only recently the whole profession was indignant over an article appearing in "Current Literature." This was a digest of an address delivered by Dr. William Hunter, a famous British physician, before the students of McGill University. As the article appeared in "Current Literature" it would look as though Dr. Hunter was most unfair and that many cases he cited were not characteristic of dentistry in this country, but characteristic of the dentistry in his own country. But if you will read the original article it will give you something to ponder over.

In summing up the effects of orap sepsis from unscientific dentistry and pyorrhea pockets he has this to say: "The chief feature of this particular oral sepsis is that the whole of it is swallowed or absorbed into the lymphatics and blood. Unlike the sepsis of open wounds on the outside of the body none of it is got rid of by free discharge on the surface. The effects of it, therefore, fall in the first place upon the whole of the alimentary tract, from the tonsils downward. These effects include every degree and variety of tonsilitis and pharyngitis; of gastric trouble and gastric ulcer and every degree and variety of enteritis and colitis and troubles in adjacent parts, e.g., appendicitis. The effects fall in the second place upon the glands (adenitis); on the blood (septic anemia, purpura fever, septicemia); on the joints (arthritis); on the kidneys (nephritis); and on the nervous system." What physical devastation! What a responsibility to prevent such conditions! Who does the laity and the physician look to for its prevention? The dentist. The men we turn out from our colleges. Gentlemen, we are face to face with the greatest problem that has ever confronted us. The world looks to us as the guardians of the portal of the human body. It is going to be exacting. We must rise to the responsibility and fill in our ranks with men capable of doing battle with this terrible condition. The teacher's weapons must not be limited to ingenious devices or digital skill. He is going to be placed on a par with his medical brother, who will call him in consultation, and he must be able to do more than suggest the filling of the tooth, the treatment of an abscess or the scaling of the roots. He must be able to diagnose the trouble, direct treatment, prescribe remedial agents and diet. Gentlemen, dental students are not getting enough pathology and bacteriology. At a recent faculty meeting which I attended this question came up and the professor of general pathology had this to say: "Gentlemen, you will never succeed in impressing the dental student with the importance of pathology and bacteriology until you cease impressing him with the idea that filling, crowning and making teeth is paramount in dental education." In the treatment of many diseases to-day the least important factor is drugs. Instead there is care, antiseptics, pure air and diet. Consider for a moment the importance of diet; there is hardly a disease that human flesh is heir to, in which diet is not a factor. This is especially true with diseases of the oral cavity, from caries of the teeth to the pus-laden pockets of pyorrhea.

Dr. George E. Hunt, of Indianapolis, in a paper read before the Chicago Dental Society, recently, made this statement: "The question of unhygienic oral conditions can be traced to our ignorance of what, how and when to eat."

As a profession we know practically nothing about dietetics, and I find only one or two schools that give lectures on the subject. Every college in the country should give a thorough course on this important question. The close relationship between diseases and abnormal conditions of the oral cavity and the nose and throat calls for a course of special lectures by nose and throat specialists. This course, I am sure, would be of inestimable value to our students. A course in Roentgenology should be given in every dental college, and all should have an X-ray apparatus, for we all recognize its importance and aid in the diagnosis and treatment of dental lesions.

In presenting what I consider some of the vulnerable points in our educational work, it is not in a spirit of criticism. I give way to no one in my loyalty to the profession or appreciation of the great advance that has been made. I am in love with my chosen work. I am glad that in a humble way I have had the opportunity of being an aid in this great advance. But we are on the threshold of greater possibilities than the greatest optimist ever dreamed of, and we must be prepared and able for the great work.

Before concluding this address, there is a suggestion that I desire to make, and that is the advisability of changing the name of this organization to one more simple. A universal and concerted effort is now being made along all progressive educational lines to simplify scientific terms, and even common names, so as to have them readily intelligible and easily understood by the laity. It is therefore timely for us, as a progressive profession, to lay aside all or any pseudo-scientific aspirations and fall in line with the onward march of progress, in this as well as other directions. So I would advise that we change the name to "National Association of Dental Teachers."

"Then shall our name be,
Familiar in their mouths as household words."

DISCUSSION.

DR. A. W. THORNTON, Toronto Can.:—When I received Dr. Gethro's letter asking me to open the discussion of the President's address, I replied saying that if I could in any way elaborate, enlarge upon, or make any suggestions relative to any address that might be given by the illustrious Don M. Gallie, of Chicago, I would be glad to do so. But after receiving a copy of his paper the question that arose in my mind was, Am I able to deliver the goods? You have listened to a paper that is full of suggestion, and I realize that I am addressing a body of men who are critically, keenly analytical, and yet at the same time deeply sympathetic So you will not expect me to indulge in any pleasing platitudes. Rather, it is possible that in presenting some phases of the subject I may differ somewhat from the position taken by Dr. Gallie.

Let me say in starting that all night I had dreams of the time that has now come when I should have to discuss this paper. And there were in my ears the deep, dulcet, double-diapason tones that we are all so familiar with as coming from Dr. Gallie. Now that I have waked up to the stern reality of appearing before you, the noise that we are listening to is not quite so pleasant as listening to Dr. Gallie's voice; it may be coming from above, but it sounds to me as though it might be coming from the infernal regions.

In his opening remarks, Dr. Gallie would seem almost to taboo a president's address and its discussion. And yet I am not sure that one of the best things of our gatherings year after year is the president's address. Every great work has its beginning in a mental conception, and I think it would be a very grievous mistake if the pleasure of the president's position were to be lessened by robbing him of the duty and the responsibility of looking into the teaching of the colleges and presenting that which we may strive after in the future. And those of you who have listened to Dr. Gallie's address this morning know that we would have missed a great deal of the profit of our gathering had we been deprived of that address.

In discussing the heterogeneous teaching of the past and comparing it with the uniform teaching of the schools of the present, Dr. Gallie makes this remark: "This may have been called individuality in teaching, but in the teaching of a practical subject, scientific principles are of more importance than the individual." Dr. Gallie is right, and yet, as teachers in dental colleges, we perhaps should pause and think just there. Since coming to Chicago I heard a man say that what we need in our schools to-day is men who *do things* rather than men who *say things*. We must have the men that can do things, but we must have men that can *teach* things. And, having been a teacher for many years both in public school work and in the profession of dentistry, I want to say candidly that if I had to make my choice between a man that was an expert operator, an expert man in prosthetic dentistry or in crown and bridge work, but a man who knew nothing of pedagogy, a man who could not teach—if I had to choose between such a man and the man who had only average ability along the lines of practical work, but a man who could teach, a man who was himself a student, a man who could inspire the students to think for themselves, I would without a shadow of hesitation choose the man who was a teacher. The great Dr. Osler, formerly of Toronto, afterwards associated with Johns Hopkins University, and now in one of the British universities, said: "No matter how complete the equipment of an institution of learning may be, no matter how perfect its apparatus, unless there is between the teacher and the taught the personal contact, the personal equation, then the teaching of that institution will not meet the success it otherwise would."

So we must choose as teachers of our students, men of a certain type of individuality, men who have trained minds and who are trained teachers. Therefore I believe that I am not at all at variance with the views of our president; we must have the one, we cannot do without the other.

Dr. Gallie says: "This unification or standardization can be traced to the efforts of this body. It is thought by some that we have nearly reached perfection in the restoration of lost tooth structure and in the making of crowns, bridges and artificial dentures; but, gentlemen, the time has come when we must produce something more than finished artisans." Is that statement true? Have we reached anything like perfection in the restoration of lost tooth tissue? Why, we are only beginning to learn how to restore lost tooth tissue. It is true that in the past we have had plenty of material in the mouth, but that material has been inserted in such a manner that often more injury was done than good obtained by its insertion. You had only to visit the clinic yesterday to realize how deeply the dentists of this North American continent are interested in the manner of preparing this material to be inserted in the mouth, so that it may not bring about the disastrous results which have followed many of our operations in the past. In the future the whole question of restoration of tooth tissue will be brought to a degree of perfection not yet dreamed of, and while we must have men with scholarly minds and scientific training, we must have men who also possess an appreciation of the technic of the work that they are to put in the mouths of patients; we must have the one, but no man will dare to say that we could lower the standard of the technic work that is being done in our colleges at the present time.

I take the liberty of quoting a part of the discussion of one of our members, a man of the highest pedagogical attainments, and most skillful as an operator, who said: "We are striving to make too much besides practical dentists of our students. The tendency is to demand too much of them, at the expense of the practical work in the operative clinic, and the prosthetic laboratory. It has taken more than four years to make a Black, a Miller, a Brophy. All that the college can do is to lay the foundation, and if the student is made of the right material he will complete his education in a scientific direction after he has received his diploma." Gentlemen, that is true. You cannot make a scientist and a practical dentist in the time that is devoted to teaching in our colleges at the present time. All that the best of us can hope to do is to inspire the men that listen to us; and not all the men, just one here and there, will go out and pursue in the future the avenues of instruction which have been opened up to him in his college course. Why is it that people rove the streets at night? Philanthropists and those working along sociological lines tell us that people should stay in the house at night, that they should read and cultivate their minds. Why do they not do so? Because in our public schools the boys and girls are made to learn to read and spell *as a task*. They do not love it. If our teachers (and I believe I have committed as many blunders as any man that ever entered a public school)—if our teachers are not themselves enthused and inspired with their work they have not caught the vision, and so the beauties of even the literature of the school-room are not opened up to the children. Therefore when they leave the school-room it is with the words: "Thank God, it is all over!"

And so it is with our dental students: When they go out they are ready to sell their books, they do not care to keep them to form the nucleus of a library and they too say: "Thank God, it is over now, I can go out and make plates and bridges and I can have the good time other men in the profession are having."

Dr. Gallie referred to the fact that one of the state legislatures in this union had passed a law that no one should practice dentistry unless he were also a graduate in medicine. May the Lord forgive Dr. Gallie for reaching any conclusion or drawing any deduction from the act of any state legislature! I know something even of the legislature of the United States, where I at one time lived and taught, and I have taken some little part in the politics of the country north of the great lakes and the international line. I was on one occasion appointed member of a committee to wait on the Legislature of the Province of Ontario. A man had asked for a special act of parliament to make him a dentist, and our committee appeared before the private bills committee of that legislature and tried to show that this man was not qualified to practice dentistry, that he had no preliminary education, that it was absolutely impossible for him to give to patients the intelligent service which they demanded. And one of our mighty legislators there said, "What does a man want to know Latin for to pull teeth?" That was the idea of the legislators, that dentists were men who "pulled teeth." And in this country positions are taken by the legislators of the various states that are not a whit more intelligent than the position taken by that legislator in the province of Ontario.

There are many in our profession who think that a man should be a graduate in medicine *and* a graduate in dentistry, or that in some way they should be combined before a man practises dentistry. That is an ideal condition, but I do not believe it is possible under the present conditions. There is an economic basis to that question. In this country we spend three years in dentistry and four years in medicine, and I do not believe it is possible to get a sound, scientific working knowledge of the two professions in any less time than that. In our country we take four years in dentistry and five years in medicine, and I do not see how the two courses can be largely carried on concurrently. Let me ask you, why do men enter dentistry? A few come from our own homes, those of us who have seen the vision after years of practice; but the men who fill the ranks of the profession of dentistry come largely from the homes of the ordinary people. Thank God that this is so. I think the Lord must like common people, he made so many of us. But listen. When a man puts his son into mercantile life, it is because some man has made a success of it—some man has gone into the United States Court and sworn he is worth five hundred millions, and the vision enters into the mind of that man for his son to be able at some future time to go into court and swear that he is worth a like sum. Why does a man go into law? Because he knows some one who has made a success in law. Why into dentistry? Because men in dentistry make an average good living, he thinks it is easy work and easy money, and he goes into it to make a living just as others go into a mercantile life or any other calling. And that is the idea of the student when he enters dental college. It is not with any thought of altruism, but of egotism that he enters upon his studies, simply to obtain that which will enable him to live in comfort. And it costs that man not less than $5,000. We must realize that every hour a student spends in college means a dollar to him, and if we tack on two or three years additional we will shut out many men who can, under present conditions, come and give good service after the training they now receive.

Let me illustrate by an incident that recently occurred in the city of Toronto. Mr. Fels, a noted citizen of the United States, came to us to talk along philanthropic lines. He has made a great deal of money, and it surely is not tainted money. It must be clean because it was made out of soap. He spoke in one of the churches a week ago last Sunday, just after the severe cold weather. The pastor of the church made an earnest appeal to the people to give food and clothing to help the poor. Mr. Fels arose and said: "Do not make any such appeal to the people, let those who are poor starve and shiver and freeze and die, and in that way you will wake up the manufacturers, the employers of labor, to the terrible sociological conditions under which we live, when the social millennium will the more quickly be brought about." The pastor of the church, a wise man, said: "We realize as well as any one the sociological conditions under which we live. Nevertheless I will make such appeals Sunday after Sunday because the sufferings of the people must be ameliorated. I grant, the conditions are not ideal, but we must go along doing the best we can under the present condition."

And so in the same way people are suffering because of the loss of tooth tissue, and they will continue to suffer. But we are turning out men and women to practice dentistry and meet the conditions that exist at the present time, and if we were to burden the profession to an extent very much greater than at present, the suffering would be great indeed. Therefore I say go on and teach students to fill teeth and to make plates and crowns and bridges, teach them to do that as well as possible, and at the same time try to inspire some men to cultivate the other side, to become scientists along higher and better lines.

Then there is another side to it. Most of us are not looking for self-sacrifice. Metaphorically speaking, last night I sat, as did every one of you, at the feet of a man who has done much along scientific lines for the upbuilding of the dental profession. Do you think you can inspire a large percentage of our students to go out and live the life that Dr. Black has lived, a life of self-sacrifice, a life where the social element cannot be largely cultivated? A man must live alone in his laboratory, in his library with his books, he must have time to think. Like the great forerunner of the Christ he must live in the wilderness that he may commune with something higher. But most men are not looking for that to-day.

And so let us go on in the future as we have done in the past, giving to the public a service of which we are not ashamed. Sometimes I feel discouraged, there is a sordid side to our life, but I am thankful that I am a member of this body. It is always a debatable question whether I shall come or not, but the nearer it comes to the time of meeting the harder the string pulls, and I could not stay away if I tried. And I am glad, because it lifts me out of the sordid things of life.

Permit me to close with a little illustration I heard a short time ago. A farmer down in Kentucky, when going through the woods one day, caught a young eagle that had not yet learned to fly. He took it home and put it in the coop with his chickens, ducks and geese. For a time the eagle seemed to look at the other occupants of the coop somewhat in disdain, but after a while appeared to feel more at home. But it grew, and one day the wings began to play and the eagle was over the woven wire fence. The old farmer caught it and brought it back, clipped its wings, and thought it would stay. But again the wings grew and it flew over the fence, and again the farmer brought it back, after which it seemed to settle down, content with its environment, and the farmer thought there was no necessity for clipping its wings further. But one day the farmer, sitting on the veranda reading the paper, fell asleep, the paper falling from his hand unheeded and the sun beating down on his bare head. Then came a cry from the blue which was unnoticed save by the eagle in the pen. He turned his ears toward the sound, his eyes seemed to glisten. Again the call came from the blue, and he stretched forth his neck, shook his wings with a few convulsive efforts, then put them into play, and, with an answering cry, shot into the blue, into his native element and to his own sort.

That is what coming to this meeting does for me. Sordid feelings take possession of my mind because of the necessity to do things to make a living. But I realize that there is something better in store for the dental profession. There is a call coming to us from out the blue, and I am glad so many men are catching that cry. I believe that in the not far distant future the whole profession will rise to a higher plane, when the joy in the atmosphere will be such as it has not known in the past. The time is already here when the public has awakened to the fact that the dentists of this country are the great conservers of the national health, wealth and happiness.

DEATH BY COCAINE INJECTION

In the Dental Surgeon of March 15th, is reported a death of a woman twenty-nine years of age, following the injection of cocaine and extraction. It would appear from the history that the patient had been suffering from an alveolar abscess. There was great pain during the extraction and following the extraction. The patient complained of dizziness for some time after the operation. She gradually complained more and more of dizziness and sore mouth for about a week when a physician was called in who recognized an acute alveolar abscess and called in a dentist, who washed the mouth regularly for some days. The patient not getting any bettter, a surgeon was called who injected anti-streptococcus without any improvement. The patient gradually got worse and died of pneumonia, brought about by septic poisoning.

An action was brought against the dentist for causing death by cocaine. The jury however decided that it was not the cocaine that caused the death, but septic poisoning from an alveolar abscess.

This is one of several cases recently reported in the dental literature. It shows the danger of injecting cocaine around infected teeth.

Obituary

THE LATE DR. G. A. REID.

The dental profession in Ontario lost one of its oldest and most respected members by the death of G. A. Reid on March 4, 1913. Dr. Reid was born about a mile north of Fergus in 1841. He got his early education in Elora and later in Milton. He took a dental course in the Philadelphia Dental College, graduating about 1868. After practising for about a year in La Piero, Mich., he came to Canada and worked under

Drs. Zimmerman and Husband in Mt. Forest, for a short time and then in Fergus. In 1874 he obtained his L.D.S. from the R.C.D.S., and took the Fergus practice, which he continued until last December, when ill health compelled him to give up working.

Dr. Reid was one of those wholesouled men seldom seen yet ever loved, generous to a fault and possessed of such a disposition as to win the confidence of his most nervous patients. You will find no one in the community that knew him to have anything but pleasant memories of Dr. Reid—when he laughed, if those hearing him could refrain from doing the same, there was a flaw in their mental make up.

To his brother dentists he was always ready to give advice if it were wanted and it was never trouble to him to give assistance in devising ways and means of rendering the best possible service to the general public.

In religion he was a Presbyterian; a member of the Masonic order, being a charter member of the local lodge. He took an active interest in the welfare of his town, and had been an enthusiastic curler.

He is survived by his wife, to whom he was married in 1875, two brothers and two sisters.

Dr. Jesse A. Mills, who for nearly thirty years practised his profession as a dentist in Toronto, died very suddenly of heart disease on February 16th last. Dr. Mills returned from his office for dinner at his residence, 44 Howland avenue, apparently in his usual health, and after finishing his meal walked out to the kitchen, where he was stricken suddenly, falling to the floor. He was dead within a few minutes. He was confined to his bed for several weeks in January on account of heart trouble, but had been attending to his practice for some time and seemed to have completely recovered. The late Dr. Mills was very well known in Toronto, and his office for many years was located at the corner of Spadina avenue and College streets. He was a member of the Masonic order, and attended the Trinity Methodist Church. He was born on a farm at Schomberg 56 years ago. One son, 19 years of age, and a widow survive.

Dental Societies

EASTERN ONTARIO DENTAL ASSOCIATION.

The Twenty-sixth Annual Meeting of the Eastern Ontario Dental Association will be held on Wednesday, Thursday and Friday, April 30 and May 1 and 2, at Ottawa, Ont. The following is the programme:

Wednesday, 8 p.m.—Welcome to delegates; reading minutes last meeting; financial statement; appointment of auditors; unfinished business; reports of committees; enrollment of new members and collection of dues; election of officers; new business; notices of motion; president's address, Dr. Morrow. Discussion opened by Dr. W. R. Greene.

Thursday, 9.30 a.m.—Dr. H. Winters, paper, "Bismuth sub-nitrate and paraffin as a root canal filling," and a clinic to demonstrate the method Discussion opened by Dr. W. B. Cavanagh, Cornwall. Paper, Dr. F. A. Ackroyd, Kings, "Vaccination and School Children's Teeth." Discussion opened by Dr. R. E. Sparks, Kingston. Reports of Committees and General Business.

Thursday, 2.30 p.m.—Paper, Dr. Laidlaw, "Plea for treatment of Pyorrhea Alveolaris by Vaccintion." Discussion opened by Dr. R. L. Reade, Toronto. Paper, Dr. Bradley, Richmond, "Orthodontia from a General Practitioner's Standpoint." Discussion opened by Dr. L. E. Stanley, Ottawa.

Dr. McElhinney will give report of work of Oral Hygiene Commission, and of Public School Inspection in Ottawa.

Thursday, 8 p.m.—Dr. McCullough, Toronto, Ontario Health Officer, "Evolution of Public Health in Ontario."

Friday, 9.30 a.m.—Clinics.—1. Dr. Bradley, Anatomical Articulation, using the Face Bow. 2. Dr. Richardson, Replacing lost Central, using Carmichael Attachment. 3. Dr. R. H. Cosgrove, Seamless Crowns. 4. Selected. Dr. W. R. Greene. 5. Dr. McIntyre, Practical Method of overcoming difficulties of taking impressions in mouths, edentulous with little or no ridge and getting best results. 6. Selected, Dr. W. B. Cavanagh, Cornwall. 7. Dr. O. Martin, Mixing Silicate Cements, for shades and best method to secure lasting results. 8. Dr. Leggo, Jiffy Cement Tubes. 9. Dr. H. L. Watt, Method of mixing plaster of Paris.

Friday, 2.30 p.m.—Dr. R. J. Reade, Paper, "Amalgam Fillings." Discussion opened by Dr. Cross. Paper, Dr. R. E. Sparks, Kingston, "Use of Medicaments in the Immediate Extirpation of Pulps." Discussion opened by Dr. Liddle, Ottawa.

Friday evening—Entertainment of the Delegates by the Ottawa dentists.

Dominion Dental Journal

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BROKEN APPOINTMENTS AND DENTAL FEES

In a recent case before Judge Morson, Toronto, Dr. Arthur Day sued a patient for payment of a dental account. It was reported that the defendant asked Dr. Day what his fee would be to do certain dental operations for him. Dr. Day said about a certain amount. About a year afterwards, other cavities developed. The court held that the statement, "about $100," was a hard and fast contract. The court also held that if any cavities developed before a year it was due to bad dentistry and should be made good under the original contract. There was a charge for a broken appointment which the court would not allow. In fact this charge was looked upon as very unjustifiable. Altogether the court concluded that dentists' fees had increased very considerably of late and that something should be done to make a uniform fee for all dentists.

It is well for dentists to know that to mention an approximate fee before an operation is undertaken is equivalent to a contract to do the work for the fee mentioned. It is a fact that most judges object to allowing a dentist payment for broken appointments. They look upon this as an improper charge. Technically there are very few cases where such a fee could be collected. To have placed upon an appointment card, which is given to a patient, that "a fee will be charged for broken appointments" is not a contract, unless the patient's attention is called to the matter and he agrees to the conditions. In such a case a fee could be collected for a broken appointment.

The observation of the court that dentists' fees have increased of late is probably correct. The question is have they increased out of proportion to increases in other things or are the charges out of proportion to the value of the services rendered, or, owing to certain dental laws of the province, is there a monopoly created or made for the want of competition? Or are the charges out of proportion to the cost of dental education and the skill, attainments and labor required of a dentist? Would the same education, skill, attainments and work not be equally rewarded in other walks of life?

These are a few of the things that must be considered before a conclusion can be reached. According to reports of investigating committees on the high cost of living, it is said that many of the necessities have increased from fifty to a hundred per cent. in five to ten years and that many manufactured articles have increased in selling price while the cost of production has decreased in some cases one to three hundred per cent. So that the actual cost of living has increased really more than the apparent cost. The dental fee, like all other skilled service, is more stable than commodities in which the supply and demand can increase or decrease with the seasons. As a matter of fact the dental fee has not kept pace with the increased cost of other things and when it does increase, it will remain long after the cost of other articles has been reduced.

There is no question as to the value of the services rendered by a dentist. The public and other professions have been slow to recognize the value of dental service. Why? Because the dentist does not himself appreciate the value of what he does for his patients. Dentists have, as a matter of course, relieved pain, cured local and general diseases, made the unhappy joyful, the uncomely handsome, and the invalid rejoice with his friends. Dentists have hardly dared to acknowledge to themselves, much less to their patients, that the dental operations performed were the cause of recoveries from indigestion, rheumatism, pyæmia and a dozen other general diseases. Dentists have not reported case after case of recovery as they might have done and thus built up such an amount of evidence that there would be no gainsaying the facts. Dentists have been busy doing their duty to the public without observing carefully and then reporting the value of their service from the housetops.

The dental laws of Ontario have certainly not created a monoply which have unduly increased fees, while fully qualified dentists have been willing to work two or three of the first years of their practice for such fees as will not pay the expenses of the office, and while people can have dental operations for less than would be paid for the services of a milliner, a plumber or a lawyer. If dentistry were more remunerative than other similar callings or out of proportion to other things, dentists would live better, spend more and be more wealthy than others. Any observer knows this is not a fact. The dentist and the minister are about equal in worldly possessions. If dentistry were unduly remunerative, many more would enter it, while, as a matter of fact, few and fewer are beginning it and those who are in dentistry are looking forward to the time when they will do something else.

The learned judge did not complain of the high fees of the dentist without suggesting a remedy. His remedy, as we understand it, was to have an act passed making a compulsory uniform fee for all dentists. This would be a body blow at individualism. There would be no stimulus to progress.

The dentist of years of experience and study could collect only the same fee for his services as the young man just from college. If all men had equal skill and all patients equal resistance to disease and all apparently similar operations of equal difficulty a uniform fee might prevail. Any such agreement among dentists would be in restraint and would be open for attack under another statute.

CHANGES IN DENTAL SOCIETY MEETINGS

The Chicago Dental Society has in recent years developed a line of dental meeting which is different from the usual dental society meeting. The usual dental society meeting is made up of full sessions of papers, one session of clinics, and a chance to see the exhibits between papers and clinics. For several years the Chicago Dental Society at its annual meeting has catered to the wishes of the dentist who wants something "practical." It has given up half of the time allotted to the meeting to the manufacturers exhibits. This is an easy program for the local society to prepare. It satisfies the man who goes to the city to see the new things. On the evening of the first day is delivered the only paper of the meeting. A noted essayist is chosen. The essay is well discussed. The attendance is large and the arrangements perfect. This arrangement allows the city members to attend the literary session and those from outside to attend the theatre if they wish. The second day is given up to clinics both manufacturers and dentists.

Another part of the plan is to hold the meeting on Friday and Saturday. The dentist from afar can take the late train Saturday night and be home ready for work on Monday. The local dentist has nothing to do with the program on Friday and usually takes Saturday afternoon off anyway, so that he loses Saturday forenoon only from his practice. This plan has much to commend it in many ways. It is an economy in time and like the daily newspaper it gives everybody a chance to get what he wants. A large meeting is assured, but it is a question if it would not be a good idea to extend the scientific aspects of the meeting.

DENTAL SOCIETY MEETINGS AS POST GRADUATE SCHOOLS

There are changes taking place in dental society meetings which are worthy of careful consideration. At the bi-annual meeting of the Canadian Dental Association, held in Toronto, 1910, the president strongly advocated making the meeting the closing days of a post-graduate course, open to all members, and run for a week or ten days preceding the meeting. There was at that time little support of the plan. The meeting and the post-graduate course were held at separate times of the year. During 1912 the Dental Society of Oklahoma carried through a dental society meeting or post-graduate course of a week's duration, along the lines suggested above. This year several of the societies of the West are considering a similar plan for their annual meeting. It is suggested that the faculty of some University prepare a post-graduate course of a week's duration and give it at several society meetings during the year. There is nothing that could be done in dentistry at the present time which would be of greater value to the dental profession and the public.

OFFICERS, ST. JOHN DENTAL SOCIETY.

The St. John Dental Society met on Thursday evening, April 4th, 1913. The following officers were elected: President, F. G. Sancton; Vice-President, F. S. Sawaya; Secretary-Treasurer, Otto Nase; Executive Committee: W. P. Broderick, E. R. Sewell, J. H. Barton.

Editorial Notes

At a meeting of the Corporation of McGill University, it was decided to establish a double course in arts and dentistry. The requirements in arts are to be identical with those prescribed for students taking the double course in arts and medicine. The members of the faculty of medicine reported the results of a conference between the representatives of the McGill and Toronto medical schools, which are now before the medical faculty of the two universities for consideration. The important recommendations are, that physics and chemistry be made compulsory for matriculation, and a scheme for the grouping of subjects for examination for co-partnership of each university.

REVIEW.

The Practice of Dentistry, a practical treatise upon the general practice of dentistry, Operative and Prosthetic, exclusive of orthodontic practice, by Leo Greenbaum, M.D., D.D.S., formerly Dean and Professor of Clinical Dentistry, Materia Medica and Anesthesia in the Philadelphia Dental College; and Max Greenbaum, D.D.S., formerly Quiz master in the Philadelphia Dental College, with three hundred and fifty illustrations. Published by D. Appleton and Company, New York and London, 1912.

This is a comprehensive book on the practise of dentistry, especially designed and prepared for practitioners. It has a distinct advantage over all other books on the subject in as much as some experienced men can get valuable information on modern dentistry without having been compelled to read the greater part of obsolete matter and matter which has been prepared for the inexperienced student. It goes to the pit of the subject without wearying the reader with unessential details.

Dr. Ernest C. McDonald was married April 14, 1913, to Miss Irene E. Clemens, of Galt, Ont. They will reside at 117 Hilton avenue, Toronto, Ont.

W. B. Saunders Company, publishers, of Philadelphia and London, have issued another edition (17th) of their handsome illustrated catalogue.

The senior class of the Royal College of Dental Surgeons of Ontario held their graduating dinner at the King Edward Hotel, April 24, 1913.

ONTARIO DENTAL SOCIETY ANNUAL CONVENTION, MAY 12TH, 13TH, AND 14TH, 1913.

Registration—Monday, May 12th, from 10.30 a.m. to 2.30 p.m.

Exhibits—Monday, 9.30 a.m., and during Convention.

Sessions—Monday, 3 p.m. and 8 p.m.; Tuesday, 2 p.m.

Clinics—Tuesday, 9.30 a.m.; Wednesday, 9.30 a.m.

Essayists—Dr. Geo. E. Hunt, Indianapolis, Ind., "The Economic Value of a Clean Mouth." (Moving pictures.) Dr. J. Wright Beach, Buffalo, N.Y., "Special Attachments for Partial Dentures." Dr. D. King Smith, Toronto, "Mouth Indications of Syphilis." Dr. A. E. Webster, Toronto, "New Appliances."

Special Features—Luncheon, Tuesday, to be addressed by a prominent speaker. Tickets, 75 cents. Large clinic on Dr. Smith's paper.

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F. C. HUSBAND, Chairman.
A. DAY, Secretary Programme Committee.

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Dominion
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Original Communications

THE TEACHING OF ART IN SCHOOLS OF DENTISTRY

JOSEPH NOLIN, D.D.S., L.D.S., Montreal Que.

Read before the Institute of Dental Pedagogics, Pittsburg, Pa., January, 1913.

Is dental surgery a liberal profession, an art, or a handicraft?

The question is brutal, almost impertinent; it is, however, the one which every man who undertakes the organization of a modern Dental School must put to himself at the outset. And before answering this question it is impossible to elaborate a serious and well-weighed programme of dental studies.

A *liberal profession*, Larousse tells us, is one in which the intelligence plays a more important part than the hand.

The liberal or *fine arts* are those in which intelligence and hand work in concert.

The handicraft, or *mechanic art*, is that in which the hand works almost alone, guided rather by habit than by the intelligence.

Law and Medicine are professions. Painting and Sculpture are arts. Shoe-making, cabinet-making, gold-smithry are handicrafts.

To say of the dentists' work that the intelligence is not concerned in by far the greater portion of it, would be a grave error, an error, however, into which too many people fall and which the lack of high ideals and of culture displayed by certain dentists, tends unfortunately to spread still more widely.

To declare, on the other hand, that manual labor is not concerned in a considerable proportion of it, would be to depart from truth.

Called upon daily to solve a thousand and one problems—pathologic, therapeutic or prophylactic—Dental Surgery is becoming more and more an important specialism in Medicine, compelling the dental school to prepare a complicated programme of biological and medical studies.

But the task of the dentist does not confine itself, as do the other medical specialisms, to ridding the human body of the ills which assail it. It must, in addition, by prosthetic means, restore to the human mouth, to the human face, their functions, their harmony and their beauty, destroyed by disease.

Regarded under this particular aspect, is the task of the dentist to be classified as an art or a handicraft? Does intelligence here direct the hand, or is it guided by habit? In fine, does the dentist become here an artist or a craftsman..

To study with you this problem in its relations to the education given by dental schools; to investigate what we have done in the past and what we have left undone; to inquire if it would be possible to do better; such is the task that I have set myself, in preparing the modest essay which I have the honor to submit to you.

WHAT IS ART?

Considered in respect to its objection, Art is, first and foremost, the manifestation of the *Beautiful.* Where the beautiful is no longer concerned, Art ceases.

Now the beautiful is especially apparent to the senses when embodied in a form, and for that reason painting and sculpture are the plastic arts, properly so called, or the fine arts.

Considered in regard to its medium of expression, Art is the interpretation of nature.

What pains, what toil, do the painter and the sculptor impose upon themselves in order to filch from nature the secrets of her beauty! Anatomy —general, regional, external or artistic—long training of mind, eye and hand, nothing deters them.

What a triumph, then, when the painter has fixed upon canvas, when the sculptor has reproduced in marble, that ultimate manifestation of the beautiful, that *ensemble* of subtle curves and harmonious contours which compose the human face.

Let the artist seize and reproduce a fugitive expression, a smile, a look of melancholy, and straightway he find himself immortalized.

How much more beautiful, however, and how much more difficult also the task of the dental surgeon.

The human face—masterpiece of the Almighty, the human face, injured, deformed, rendered unsightly by disease, by traumatism, by the absorption of tissues, by accidents of growth, is entrusted to him, in order that, to this living flesh, he may restore its beauty and its original harmony.

HOW WE PREPARE OUR STUDENTS FOR THIS TASK.

What are we doing, gentlemen, to prepare our students for this delicate task?

What are we teaching them of general morphology, or of the artistic anatomy of the face?

What are we doing, in short, to develop in them the sence of *form*, of *direction*, and of *proportion?*

I put this question last year to my friend Dr. Webster. Fixing on me his piercing eye and with the sphinx like smile that you know so well, he replied in the terse and picturesque language of Western Canada, "Not a damn thing."

In what, on the whole, at the present moment, do the artistic studies of the student in our dental colleges consist? The modelling of a few teeth in clay—the carving of a few others in ivory—the construction of a few metal crowns—the taking of a few impressions—and then? . . . . .

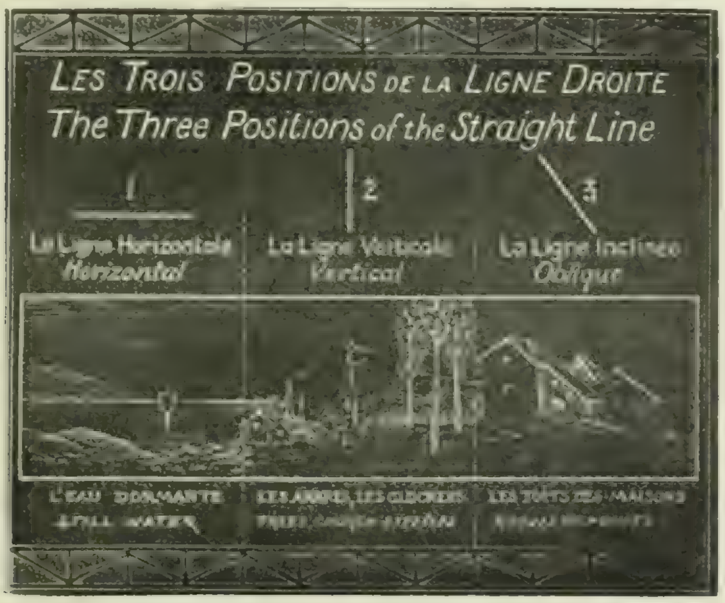

Fig. 1.
A study of straight lines.

Plates, bridges, plaster, rubber, solder, zinc, gold. . . . . . Laboratory work, that is to say, manual training, mechanical, industrial technique—and that is all. All those are very useful, quite necessary, in fact, *but are they sufficient?*

The sculptor who prepared in nothing more than the manipulation of mallet and chisel would make at the best but a second-rate stone-cutter.

One may understand the mixing of colors and yet be only a house-painter.

Dr. Black has stated somewhere, that, to make teaching effective, you must reach the fundamental principle of the subject taught. Do we, by our present methods, reach the basic principle of technical instruction? I believe not.

ARTISTIC EDUCATION OF EYE AND MIND.

We have recognized that Art is the manifestation of the beautiful and that the beautiful is especially evident to the senses when it assumes a form.

To see, to understand, and to analyse *form* in order as a result, to make himself capable of giving it expression, such will be the first care of the artist—and of the dentist, the one at least who refuses to become a mere artisan.

Let his eye see the form; let his mind grasp, dissect, and analyse it; and his hand, guided by an awakened intelligence, will require no very long training to reproduce it.

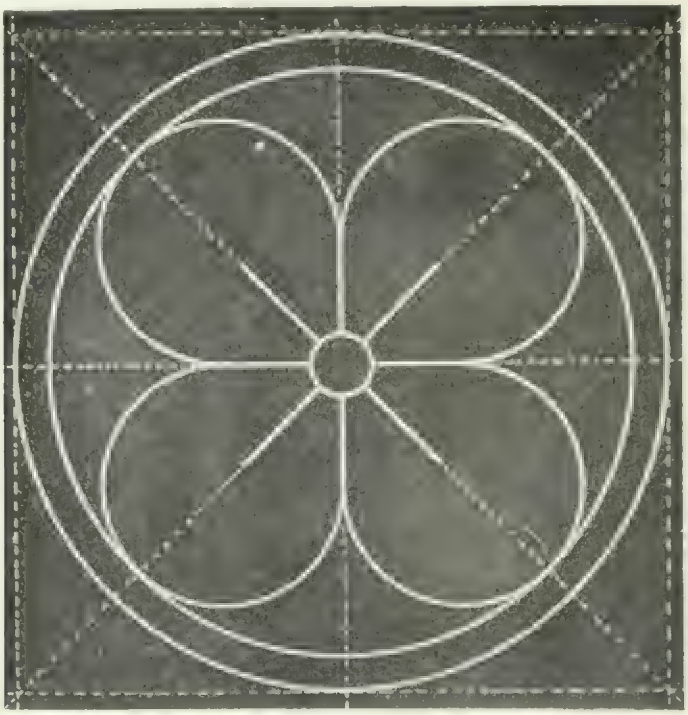

Fig. 2.
The curved line necessitates a more constant movement of the eye and a greater cerebral effort.

An artist does not say of another artist that he has drawn a landscape badly, but that he has *seen* it badly.

So the first care of the teacher of art will be to accustom his pupil to *see* the form of things.

To attain this object he will first make him study form in its simplest manifestations, those which demand the slightest movement of the eyes and the least effort of the mind. Straight lines, horizontal, vertical, and oblique—will be followed by combinations of these same lines—squares, triangles, parallelograms, etc. Then will come the curved line and its combinations—circles, ovals, spirals, etc.—necessitating a more constant movement of the eyes and a more considerable cerebral effort. He will require the pupil to draw these, freehand, from models which he will execute before him, and will make him repeat them until he can draw them correctly and without effort. After a few lessons of this kind, the pupil will already have acquired, to a certain degree, the *sense of direction.*

This done, it will be preferable to set the pupil at once to draw from solids. Blocks of different shapes will serve as models. The pupil will begin with the simplest forms—cubes, pyramids, cones, etc., until he can draw correctly ornaments and vases with subtle and complicated lines. Large teeth of plaster or papier-mache make excellent models for this portion of the instruction in drawing of students in dental surgery.

To the cultivation of the *sense of direction* is then added that of the *sense of proportion.*

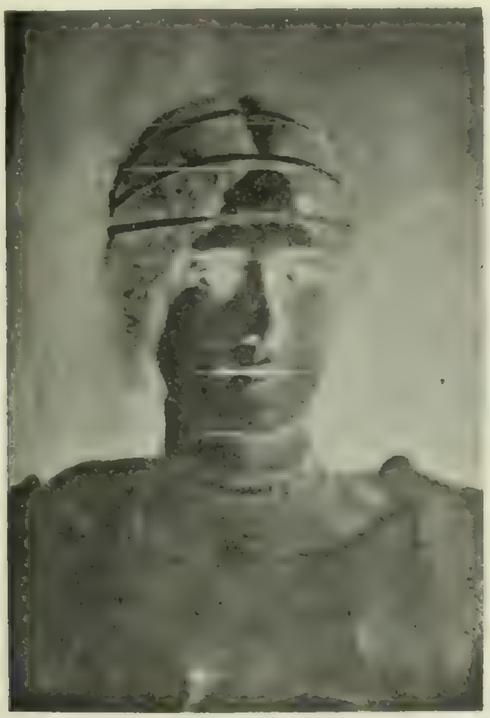

Fig. 3.

Figs. 3, 4, 5.—Division of the normal face. All deviations from these proportions will generally be found to be pathological.

Then, *and not till then*, is one ready to begin the study of the human face. The latter is the most subtle, the most complicated, the most intangible manifestation of form, and in spite of that, or perhaps because of that, the most interesting that nature presents.

Each part of the face will be first studied separately from plaster casts of exaggerated size. Then will come the face complete, then the entire head, always from casts. The teacher, without neglecting the correction of the lines, must especially insist on the exactness of the proportions, for it is, on the whole, the *sense of proportion* that the dentist most needs to acquire.

Between whiles, to vary the work and render it more complete, the pupil will have done a little modelling in clay and carving on ivory; and it will be useful towards the close to have him model one or two heads of statuettes.

A few heads drawn from living models of different sexes and ages will complete the programme.

THE TIME REQUIRED.

I hear some one say "But where will the student find the time required to do this work?"

Well, let me tell you that the time necessary to carry out the programme outlined above is not so considerable as might at first be imagined. Four hours a *week* during the first year, and two hours during the subsequent years, will be sufficient to develop to a surprising extent, the artistic sense of even the most refractory pupils, provided that the teacher is competent and the time well employed.

Fig. 4.

Moreover, one of the immediate results of this development will be a greater facility in the execution of the tasks of manual skill demanded of the student—a facility which will enable him to save elsewhere the time expended on the study of morphology.

GENERAL MORPHOLOGY.

Some lectures on General Morphology will have been given from time to time, alternately with the classes in free hand drawing and modelling. From these the pupil will learn that the most elementary manifestation of form, after the point is the *horizontal line*, which requires little or no movement of the eyes and no effort of the brain. The *horizon* on the water is the best example of this line and to it, by the way, the line owes its name.

The *vertical line* requires an up and down movement of the eyes, but as the muscles of the latter are then acting in pairs, the direction of the vertical is easily grasped, even by those in whom the sense of direction is least developed. Steeples, trees, walls of houses are vertical lines.

The *oblique line* demands more effort, in the movement which the eyes make to follow it all the muscles of the eyes being brought into play.

The greater or less deviation from the horizontal or the vertical demands, furthermore an already serious mental calculation. These three lines are, so to speak, the basis of all morphological study. There is no object in nature whose form cannot be reduced to these three lines—*horizontal, vertical,* or *oblique.* The principle is so well recognized in painting that it has given rise to the *cubist* school, which never employs the curved line (Fig 1). The *curved* line is a modification of one or other of the three straight lines—and we succeed in controlling its direction by comparison with the latter (Fig. 2). Starting from this fundamental principle morphology teaches the analysis of the form of things.

Fig. 5.

MORPHOLOGY OF THE FACE.

The *Morphology of the Face* will teach the dentist things of the utmost utility. He will learn, for example, that the normal human face is divided uniformly into four sections (Figs. 3, 4, 5) as follows:

1st.—From chin to nose.

2nd.—From the lower end of the nose to the suture of the nasal bone to the frontal.

3rd.—From this latter point to the edge of the hair.

4th.—From the edge of the hair to the top of the skull.

The first three sections are always of equal height in the *Normal* face. The fourth may vary, but it will generally equal the half of one of the other sections. All the others are studied in the same manner. After the study of the normal face, facial morphology will describe the divers classes of deviations from the rules thus laid down and their causes—extraction, decay, dentition, absorption, etc.

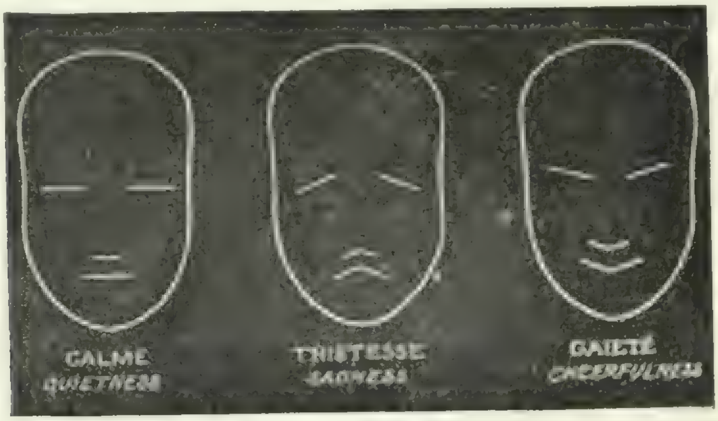

Fig. 6.

Figs. 6 and 7.—A study in expression showing how form analysis can be simplified.

What a splendid auxiliary will the professor of facial morphology make, in the future, to the professors of orthodontia and prosthesis.

Facial Morphology will also treat of the various emotions of the soul—joy, grief, scorn, etc.—of their effect on the physiognomy, and of the muscles they call into play, (Fig. 6, 7).

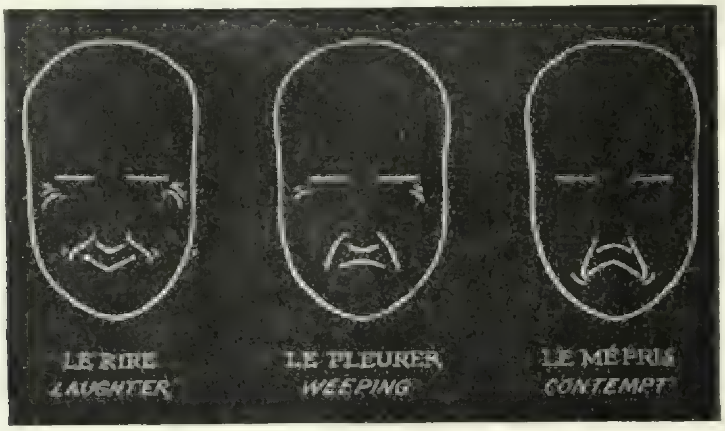

Fig. 7.

The author of this paper makes no claim to be able by himself to solve all the problems of better artistic instruction in Dental Schools. The space and time at his disposal do not even permit him to describe with any completeness the programme which, with the approval of his faculty, he is engaged in carrying out in his own school.

If, however, this modest essay could result in attracting the attention of the Institute of Dental Pedagogie to this important subject, and in arousing serious and repeated discussion on it, the essayist would feel amply rewarded for his labor, in the consciousness of having rendered an important service to his colleagues and to his profession.

CONCLUSIONS.

1st.—Dental surgery is divided into two entirely distinct parts—a medical part and a prosthetic part.

2nd.—The prosthetic part may be an art or a handicraft according to the conception which the dentist forms of it.

3rd.—This conception comes to him from the Dental School where he receives his education.

4th.—The absence of all artistic study and the exaggeration of details in his mechanical and manual training, tend to create in him an industrial and mercantile ideal, which frequently prevails over the professional ideals fostered by the medical and scientific instruction he may have received.

5th.—The teaching of Art in Dental Schools would result in elevating the ideals of young dentists, in developing their manual skill, and in rendering them more competent in the exercise of their profession.

J. A. Cameron Hoggan, D.D.S., L.D.S.,
President of the Ontario Dental Society, 1913.

PRESIDENT'S ADDRESS

J. A. CAMERON HOGGAN, D.D.S., L.D.S., Hamilton, Ont.

Read before the Ontario Dental Society, Toronto, May 12, 13 and 14, 1913.

For about twelve years in the practice and study of Dentistry, I felt very much like Atlas carrying the world. I thought of him much, and often felt that I shared his sorrow when feeling sorry for myself; but as time went on I came to feel more like the hostess whose guest asked for the second piece of pie when she had none. The time has now arrived when I can look calmly at my guest and tell the truth. The greatest obstacle in the way of this honest statement was my optimism, and I found it no easy thing to suppress. The thing all these years was lying to me. It said you belong to a great profession; a body of learned and scientific men. It will only be a matter of time before the world realizes it. As time went on the honor of Recognition belonging to the Dental profession grew so slowly that I became suspicious, so I asked my guest, The World, what was thought of me as host. And this is the story he told.

"One day while walking down the street my attention became suddenly fixed on an attractive young lady ahead. Her grace and good taste in dress gave her an indescribable charm that aroused my curiosity. A parasol completely hid her face and identity apparently. She met the people from before with down cast eyes, but seemed to take great pleasure in the fact that from behind she was as other women and respectable. I hurried and overtook her, but imagine my consternation when I discovered that she was colored."

Gentlemen, this is Dentistry. It is a plain, frank, but I think incontrovertible story. Are we trading on that parasol? Dentistry as a badge, as a family coat-of-arms are we proud of it? Or are we proud of the fact that from a distance the world does not know whether we are Dentists or Physicians. Some time the world will pull down the parasol. In the drawing room or at the country club some one will ask if you are a Dentist or a medical man. Some times the color fades. The world in the middle of the night with pain is generous. There are some who are white, but none are pure. Why? Simply because they are Dentists. Dentistry means color and that color black.

The particular pap upon which my professional pride was raised was "the man makes the profession." This is supposed to mean that it does not matter to which profession you belong it is only as great as you make. This is his profession behind him, the Harveys and Jenners. If a Dentist's graduates from college he has before him the task of making himself great and then pulling Dentistry up after him. But is this true of the Physician? No. The profession of medicine is great in spite of you or what you may do as a member of it.

A Physician's opinion publicly carries more weight than a Dentist's. This is his profession behind him, the Harvey's and Jenner's. If a Dentist's word carries weight it is in spite of the fact that he is a Dentist. They have never heard of the Williams and Millers. A great many reasons have been given why this inequitable division of honors exists. The left says, "you are a young profession. A new peer is always treated thus." The right says, "you are the butler's son at the Master's club."

The sister profession say you must do great things, famous things, and individual work, and we will receive you. Dentistry has just about reached that point at which she insists upon being taken at her own valuation. She is no longer content to do the work, to fill the place she does and accept patronizing recognition. We must have more great men to do individual work. The success of investigation, already under way, is absolutely necessary, so that when the world thinks of us it is to see the resemblance to these men, whether it exists or not. We want Dentistry to make something of itself.

What incentive, however, have we to do work? It means a life of self sacrifice, and if successful a doubtful reward. Where in the halls of Fame do you find the faces of great men in Dentistry? The reward of others is not ours. We have no wreath, no fame. We are colored. Gentlemen, it means a fight. A fight for our rights, shoulder to shoulder.

Last year at a meeting of this association a resolution was hurriedly passed to arrange a confederation with Toronto University. Will this union give Dentistry more power to insist upon her rights? I think not. Dentistry in Canada fought on her own feet. She has the right to say what she will and what she will not do. This is a franchise worth much to us. The man who shaped the policies of the school injected them with his independence, which reflects itself in the freedom of the profession to-day. All this freedom should not be lightly squandered. Sooner or later Dentistry will hold the "public health" in the hollow of her hand. The powerful influence of the normal mouth upon the health of the individual is about to be recognized, the relatively clean mouth, the true value of the proper use of the teeth, the relation of the jaws to the function of breathing, and the general harmony of the face. Gentlemen, we must remember the charm of the beautiful mouth. At this shrine men have worshiped ever since the day that Eve noticed that Adam had teeth. The mouth has been given to the Dentist as his special field. The rest of the body has been given an equal division and alloted to various specialists. It looks as though the mouth were unfortunate in being given to the Dentist. It appears that some one has decided that it was not quite of such noble birth as the rectum.

The social aspect of the question is purely a symptom of the trouble, not the cause. Some years ago it might have been a great advantage to us to have made a bargain with the University. Now, gentlemen, I feel until we change the color of Dentistry we have a better chance fighting it out here. We must beat them at their own game the "public health." We can be noble, we can be philanthropic, we can be unselfish. Can we not be great?

Discussion on the President's Address.

J. A. Rothwell, D.D.S., L.D.S., Stratford, Ont.

Mr. Chairman, Ladies and Gentlemen:

When requested to open the discussion on the address of our worthy president it was with some reluctance that I accepted. Each one must do his or her share that our meetings may be a success.

I did not get a copy of the address until just before leaving home for the city on Saturday and therefore may not have had sufficient time to properly digest it or get the real meaning.

In my opinion our esteemed president has certainly painted a very dark picture.

If this be a true picture we must not do as a certain Scotch divine on arriving at any difficulty—look it boldly in the face and pass it by. We must study it. Are we as a Profession trusting to high sounding names? Are we only an outward show while behind that "parasol" there is blackness. If our president's picture is a real one and that is the estimate placed on us by the public, then we must take stock.

We must examine ourselves; be frank with ourselves and find out whether we are deserving.

If we are trusting on an outward show only, if we are trading on the few letters added to our name, then we are deserving of the worst estimate that the public may place on us. But are we? I hope I am looking the facts fairly in the face. I hope I am true to my confreres, to myself and to the public when I say that we are not. I believe that the Dental profession puts as much brains, as much skill and integrity into the service of the public as does any other.

But does the world look on us as black? Do we not measure up to their expectations? Are we what we profess to be?

Certain it is if they look to us expecting perfection then none of us will be pure.

How do we stand relatively?

What of Law? If you have suffered experience there is no need to ask.

What of Medicine? Oh yes you say, but they can bury their mistakes and we soon forget them.

You may be sure that the public will in the long run estimate us at about our real worth.

That "the man makes the profession" is true not only of Dentistry, but of any other profession or calling.

No profession can be greater or long remain greater, than the men belonging to it.

It is the great privilege of any man entering any of the professions to become great and in so doing assist in raising the standing of his profession; and modern dentistry being only beginning to blossom forth the opportunity of the individual is so much the greater.

There is truth I think, speaking generally in the statement that the word of a physician —professionally —carries more weight with the public than does the word of the dentist. This is as the president has stated, not because of the individual but of the profession. At the present time we could hardly expect it to be otherwise. Medicine as a profession dates as far back as the history of our country, while two generations ago a dentist under the modern acceptation of the term would be hard to find.

Instead of being pessimistic we have every reason to be proud of the standing of dentistry in the eyes of the world to-day. Less than twenty years ago some of us received our early training in dentistry in a little tenement down on Louisa street. Look around you to-day. Take a walk through this building in which we are gathered. This is only an outward manifestation. This may be only the beautiful dress. But gentlemen, could this have been accomplished without the appreciation of the public?

It will be well for us as a profession if the confidence of the public be not too much centered in us unless we can measure up.

Fortunate is that profession which has from time to time among its numbers men of outstanding ability, scientific men, men with inventive minds. But at the same time let us bear in mind that the public opinion is based on the average man in the profession. The charlatans have as much influence on the mind of the public as have the great leaders in any profession. Can we be great? At no period in the history of modern dentistry has there been a brighter outlook. Our field is widening and our hopes for service greater. The time is not very far distant when we sought only to replace lost organs. As time went on we attempted to save those teeth that were diseased. Now we have assumed the care of the oral cavity and are seeking to prevent the ills which we formerly sought only to cure.

As a profession we have become aggressive. We are reaching out to educate the public mind. We realize that so much depends on a healthy mouth, the general health and the development of the individual.

As to a closer relation with the University of Toronto, I believe with the president that unless the Governors of the university or those in influence there have not a full conception of the relative importance of the department of dentistry we would be better to remain as we are until such time comes as it will come. In the service of the public we are in a position, probably, to be aggressive to a greater extent than we could be under the conditions suggested.

What is greatness? Being esteemed great, or doing something to lessen the ills of humanity. In leaving the world better than we found it.

Can we afford to wait? Very few truly great men have been appreciated to the full during their lifetime. The profession of dentistry is young. Ten, twenty, forty years is but a short time in the life of a great profession.

Heaven is not gained by a single bound
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to its summit round by round.

We rise by things that are under our feet,
By what we have mastered of good or gain,
By the pride deposed and the passions slain,
And the vanquished ills that we hourly meet.

CONCERNING INLAY TECHNIQUE

W. C. Gowan, D.D.S., L.D.S., Peterboro', Ont.

Whoever would know whether his cast inlays are or are not visibly defective in fit, should make castings intended to fit complex cavities in suitable objects other than teeth *in situ*. To test, so far as fit is concerned, the merits of different cavity forms casting technique or materials, laboratory experiments are better than operations in the mouth. An experiment affords opportunity to examine and study results that, on account of obstructions and deficient light, are seen with difficulty, if at all, in an operation. Especially is this true of gingival joints, usually defective, while occlusal joints are good, where older cavity forms and casting procedure are used.

To test the process you use, prepare cavities in extracted teeth or bone. Let one be L shape, corresponding to proximo-occlusal, the other staple shape, corresponding to m.-o.-d. for a molar. Extend the cavities well gingivally the better to see the fit of castings in them. Bevel all margins excepting the gingival, which allows a better view of the result when not bevelled, and besides more nearly resembles the gingival preparation made by ends of burs, stone points or chisels.

Make several castings for each of these cavities by the methods you use in practice and note especially the fit or misfit of the gingival joints. As these are, in experiments, so are they in operations. If defect of the gingival joint is such as burnishing will not remedy, then change in cavity preparation or in subsequent technique or in both is necessary to success; for, exposure of cement to the fluids of the mouth, at the gingival joint, means failure.

Ordinary experiments show that castings made by the earlier processes do not accurately fit the cavities they are made for; the larger and more complex the cavity the more palpably defective the fit. The reasons for this are found in the physical properties of materials used in casting.

A wax pattern contracts on cooling and, owing to the elasticity of inlay wax, is distorted by standing a short time at ordinary room temperature.

Investment materials vary in their behaviour upon setting and also in the degree to which they expand or contract when heated, and the temperature at which expansion ceases and contraction begins. But all investments containing plaster of paris contract if heated to burn out the wax and then cooled.

Ordinary investment molds bear only slight pressure without yielding. And if they yield they do so irregularly or in spots. For want of strength and hardness such molds offer little or no resistance to the contraction of the casting.

Gold in solidification and cooling, contracts more than 3 per cent. in linear dimensions if not subjected to pressure. The pressure necessary to reduce this contraction by one-half in the casting is more than investment molds can be trusted to bear without yielding. And if the mold yield at the side representing the cavity, the casting is useless. If the mold wall yield only at the opposite or contour side, the casting can be corrected in finishing.

Price's technique is, as intended, far superior to its predecessors, in that it minimizes the errors due to those properties of gold just mentioned, and avoids those due to pattern wax and investments by leaving them out of use, or at least by using the investment so that it cannot affect the cavity side of the casting.

Leaving out of account for the present the improvements in cavity form rendered practicable by Price's technique, his impression-wax has less than half the contraction and about one-tenth the elasticity or tendency to distortion of pattern-wax. Thus a stone model made from the impression furnishes as a part of the mold a very much more accurate replica of the cavity than is formed by investing a wax pattern. The stone bears heat without other change than expansion, which is desirable. It bears pressure sufficient to correct more than half the contraction of gold and by its strength and hardness resists or withstands the otherwise inevitable contraction of the casting in certain of its dimensions.

Notwithstanding the advantages of Price's technique, butted joints are to be avoided as unsafe, especially at the gingival. An overlapping joint is always to be preferred, for it is easily closed by burnishing and is in all respects better. But whatever the form of joint, the dimensions of a complex inlay, especially an m.-o.-d., must be fairly accurate if defects or failure are to be avoided.

For an account of the physical properties of casting materials the reader is referred to an article by Weston A. Price, in the Cosmos for March, 1911.

THE RATIONAL AND SUCCESSFUL TREATMENT OF TETANUS

Byron E. Fortiner, D.D.S., Camden, N.J.

Lockjaw may result from interrupted dentition of the lower third molar teeth. It may be caused by the impaction of a deciduous tooth. It may result from abscessed teeth, or neglected roots of teeth. It has been caused by the incomplete removal of a dental nerve and the improper filling of a nerve canal. Or it may come from accidental fracture of either teeth or jaws, the improper treatment of alveolar abscess, or the injudicious extraction of abscessed teeth.

The most dangerous wounds are those in parts where ligaments are most numerous. For this reason, injury to soles of feet or palms of the hands are the worst. But a slight scratch on any part of the body has been sufficient (owing to neglect of proper treatment) to cause tetanus. All scratches, cuts and punctures should be promptly attended to, packed with the proper antiseptic and made to heal from the bottom outward, as the tetanus bacillus develops best in the absence of oxygen.

If I extract a tooth and find that it is very sore and painful, I immediately pack it with the lockjaw specific, the formulæ of which is given in this paper. If there is positively an abscess at the apex and patient suffering intense pain, I use a formulæ that, while no better as an antiseptic, has stronger anæsthetic qualities and will most always put a stop to all pain without resorting to narcotics.

℞ Orthofarn	grs. xx	
Campho phenique	ʒ ii	
Oil of Sweet Almonds	ʒ i	Mix.

Sig.: Saturate one narrow piece of aseptic gauze with this, and, after moistening the socket with pure iodine or pure aromatic sulphuric acid, pack it gently but firmly in the socket and leave until next day. It can be renewed sooner than this if necessary, and it usually relieves all pain. But there is no better medicine to pack in teeth sockets or any wound where infection exists or is feared than the lockjaw specific, as it is highly antiseptic and a destroyer of toxines. Injected through abscesses with a sinus, or used in pyæmia of the antrim its antiseptic and healing qualities are remarkable. I also prescribe the following antiseptic mouth wash in these cases:

℞ Listerine	℥ i	
Dark Pinus Canadensis Kenedy	ʒ ii	
Aqua, q. s.	℥ vi	Mix.

Sig.: Have the patient put a tablespoonful in three tablespoonfuls of hot water. A mouthful of this is held in the mouth for three minutes, repeated twice. This is done every two hours, and less often as soreness disappears.

Some cases of tetanus have fallen into my hands; others have been placed into my hands for treatment, and it is enough to say that every case treated has made a remarkably rapid and successful recovery. For this reason I am giving my formulæ and method of treatment to the profession with the profound hope that some one will make it, try it, get the results that I have with it, and thus save some of those poor souls that are dying in this terrible agony. The serum treatments are not only very expensive, but many treated with them have not recovered.

I wish to describe a few cases, and give the treatment as used.

The first case was a young man, nineteen years of age; he had been suffering for two months with interrupted dentition of lower left third molar tooth. The face, at angle of jaw, had been quite swollen at times, and there had been considerable pain. While playing tennis one afternoon, he ran into the side of a house, and, in throwing up his left hand ran a rusty shutter stay half way through the centre of the palm of that hand. The pain of this was severe and of a sickening nature. In just one hour after the accident the pain suddenly left the hand and struck as with the blow of a hammer, the angle of the jaw and muscles of back and side of neck. This continued for about six hours, when jaws began to stiffen and the pain became very intense. Soaking the feet in hot mustard water, hot fomentations to the face and administration of bromides gave very unsatisfactory results, so that the first night was spent walking the floor. In the morning, every symptom being so much worse, it was decided to try my lockjaw specific. This was administered in teaspoonful doses every hour. A small piece of gauze was wet with it and inserted into the hand, another moistened piece laid on it and bound up. In three hours the pain was greatly diminished, as also was the stiffness in the muscles of the neck. At 8 o'clock that evening the jaws could be moved about one-quarter of an inch, and not nearly so much pain, so that the patient got about six hours sleep that night. In the morning the jaws could be moved enough to see the gum over the wisdom tooth. It appeared very swollen and yellow, and when a lance was inserted into it nearly a teaspoonful of yellow pus was discharged. The medicine was continued, a teaspoonful every hour during the day. Seven hours sleep was obtained the next night, and the jaws absolutely limber and body absolutely free from pain the next morning, and patient asking for his breakfast, which was given. Care of the hand, a mouth wash, and gradually diminishing doses of the lockjaw specific for two days completed the cure. This was eleven years ago, and the patient is still alive.

The next case, a woman, aged 43 years, ran a rusty nail through the thin sole of her shoe into the ball of her foot. She paid very little attention to it, and it healed over in a day or so. On the eighth day from the injury she began to feel pains in her limbs, which soon extended over the entire body, and to the muscles of the back of the neck. This woman did not believe in doctors; did not believe it right to take any medicine. Several of her friends were busy soaking her feet and applying hot fomentations to her body. I was told of the case and asked to go and see her. She was on the bed, her body stiff; shewas jerking with spasms and crying," I cannot bear this pain." I told her that I made a medicine that would cure her if she would take it, but thought that if she continued to go on with the present treatment she was pretty sure to die. She consented to take it. I gave her one teaspoonful every hour, and (believe me or not) in a few minutes after the first dose she said, "I can feel that medicine tingling all through me, and my pain feels better." The remedy was applied on cotton to the sole of the foot, but the wound was not reopened. This was to be changed three times a day. I saw her the next morning. The stiffness and spasms were all gone—pain was absolutely gone. The patient said she felt weak (she had been awake and taking her medicine all night). I told her that was the way I wanted her to feel; it was because of the thorough relaxation, and that there was no danger from that. There had been no nausea. I gave her two teaspoonfuls of brandy in a cup of warm milk, and ordered the milk every hour and the brandy every two hours, with gradually diminishing doses of the lockjaw specific. The rapidity of this recovery was remarkable. Two days after this she got up and did the family wash, and the next day the ironing. She is still alive. This was ten years ago. I have her signed testimonial corresponding with the above. Other cases can be described.

The next, a woman aged 22 years. Alveolar abscess with three putrescent lower molar roots right side. Jaws had been locked for six days; not a morsel of food taken; walking the floor and crying with agony. After a few hours' treatment—I gave her two teaspoonfuls every two hours —she held it in her mouth and could only swallow a few drops at a time. A few hours only was enough to relieve the pain and limber her jaws. The abscess discharged into the mouth in the night. She did not complain of even feeling weak, but drank hot milk, asked for orange juice, and the next day made for herself an egg custard. She is alive to-day. I have her written testimonial. These offending roots were afterwards extracted.

Another case: A woman aged 42 years; had lower left wisdom tooth extracted to relieve a toothache; cocaine anesthetic used and peroxide of hydrogen used in mouth as a wash. In two weeks no relief; went to dentist, who took out the second molar next to it, using the same treatment. When she was brought to me her jaws had been locked for seven weeks. She had been treated by seven physicians, four dentists, and had been to two hospitals without relief. Her face was swollen and the pain excruciating. She had severe inflammation of the infra-dental nerve and necrosis of the mandible. My lockjaw specific held in the mouth, and a teaspoonful administered every two hours gave relief from the pain and relaxed the jaws so that they could be operated upon. I have never seen it fail to work. It works like magic; it relieves pain; it is safe; it is of low cost; it strengthens the heart; it produces muscular relaxation; it destroys the virus of the tetanic bacillus (Toxallumins). It is not known whether it destroys the tetanic bacillus or not. It does enough without that.

I have been trying to have it used in a case of hydrophobia. I believe it will be just as effective in hydrophobia as it is in tetanus. Do not laugh at me, gentlemen, or pooh! pooh! If you had seen it work as I have you would not scoff. If it was somebody that was near and dear to you, you would try it. My father and grandfather, both physicians before me, cured tetanus, and part of my knowledge has been inherited from them. I believe I know what I am talking about. I intend to give the profession the entire formulæ, with every detail of the treatment so that they can prepare and use this remedy as independently of me as if I were not in existence.

THE LOCKJAW SPECIFIC.

℞ Tr. Echinacea Augustiflora	℥ 1	
Eucalyptol	gtts. v	
Third prep. Lobelia Inflata	ʒ ii	
Tinct. gelsemium semp.	gtts. xl	
Tinct. Catcus grandiflora	ʒ i	
Glycerine	℥ i	
Cinnamon water, q. s.	℥ viii.	Mix.

Sig.: As directed.

Third preparation of lobelia is:—

℞ Pulv. Lobelia Inflata (seeds)	ʒ ix	
Gum myrrh	ʒ iii	
Pulv. capsicum (African)	grs. xv	
Gum Kino	ʒ ss	
Alcohol	O1.	Mix, shaking well at first.

Sig.: Allow solid parts to dissolve; then use the clear liquid; that is, pour it out of the bottle without shaking.

I use and recommend the specific tinctures made by Lloyd Brothers, of Cincinnati, as being of uniform strength, reliable and of quicker action than any other preparations. The Echinacea that I use is a special preparation called Echafolta, also made by them.

It will be noticed that each drug is in comparatively small amount, and this is why the remedy is so absolutely safe. It is the proper quantity of each that does the work. In having this prepared, great care should be exercised to guard against substitution or carelessness in compounding. In my preparation I have procured my drugs from the most trustworthy drug houses, and only in that way do I know that no substitution has been practised upon me.

A reliable compound can be obtained of the Purinul Chemical Company, of Camden, N.J., where it is prepared under my personal supervision. It being so much less costly than the very expensive serum treatments, it should be brought within the reach of all. From its wonderful action in every case so far treated with it (every one being cured) I am forced to believe that unless the patient is almost dead before treatment begins, every one should be cured.

A detailed report is respectfully requested by the writer of any dentist or physician who gives it a trial. Is this asking too much? I am giving you the whole thing; this is the whole formula in exact proportions. Any dentist or physician can make it for himself. It represents years of study and work. I know I have a good thing, and I will receive some remuneration in the knowledge that I can prevent and cure human agony and save human life.

THE EVOLUTION OF PUBLIC HEALTH

DR. JOHN W. S. MCCULLOUGH, Toronto, Ont.

Read before Eastern Ontario Dental Association, Ottawa, May 1 and 2, 1913.

Public Health or Hygiene includes within its scope a great variety of subjects. The influence of some of these is opposed to the physical welfare of the public; that of others is directly or indirectly favorable. The whole science of Public Health is engaged in opposing the bad and promoting the good influences of society.

The laws, the education, the food, the clothing, the water-supplies, the disposal of sewage and waste, the housing, birth, marriage and finally the disposal of our bodies after this life is over, all come within its purview.

Teachers, social reformers, scientists, lawgivers, engineers and, perhaps even to a greater extent than others, physicians contribute to the advancement of Public Health; but after all, the general well-being of the people most largely depends upon their own properly applied intelligence, knowledge and self restraint.

Sanitary improvements in our surroundings will fail to compensate for social transgressions against the laws of morality, for public virtue is essential to public health, and both together are essential to national prosperity.

As far back as forty years ago Lord Beaconsfield declared that "The care of Public Health is the first duty of a statesman," and this sentiment was re-echoed by Lloyd George who, in introducing the Insurance Bill in the British Parliament last year said: "The foundation of national prosperity is the care of public health."

Civilized people, especially in our own land, are not dragooned into cleanliness or made virtuous by an Act of Parliament. Those who give most attention to the great questions of sanitation believe that more is accomplished for progress along public health lines by the gentle influence of education—believe that the people must be taught that good conduct, personal cleanliness, the avoidance of excess of every kind are the basework of the preservation of health, that mental and physical training must go hand in hand in the rearing and guidance of youth and that morality is not so much an observance of rules or creeds as a hearty submission to the precepts of health. Disease has always marched hand in hand with ignorance. The increase of knowledge has spread its beneficent rays into the dark corners of the earth and, like the sun in the heavens, is destructive of the causes of disease. The teaching of physiology and health laws in the schools will ground the rising generation in the fundamental principles of hygiene; and the wide-spread knowledge of the value of sanitation diffused by the lecture platform, the pulpit and the press is the best evidence of the steady growth of intelligent conception of matters affecting health preservation and the prevention of disease.

It is of interest and value to consider how hygiene has had its origin, how it grew and developed, what were its vicissitudes, and how from the remotest ages it was closely associated with the history and fortunes of every nation.

As education and its handmaid, civilization, developed so did the public health and progress. Each educational development, each step forward in the scale of civilization carried with it an advance along sanitary lines. Read the Mosiac Law of the Jews presented long before the time of Christ, and mark the wise code of instruction given by the ancient lawgiver to that race. May not the comparative longevity of the Jewish race, their remarkable immunity from the epidemics of the Middle Ages and their survival in the face of poverty, persecution and banishment have largely accounted for the silent widespread influence of that race through the centuries to the present day.

The sanitary laws of Lycurgus propounded for the Greeks had the effect of developing in that race a splendid physique and intellectual development inferior to none of their time. Their code was, however, mixed with the pagan beliefs that the epidemics of that era were due to the anger of an offended deity. They had no knowledge of the causes of disease; these were accepted as afflictions which could neither be avoided nor prevented. The decline of this great nation was due to luxury and lax morality, and their example might with profit be studied by the civilized nations of the present day.

The other great nation of antiquity, the Romans, knew little of sanitary science, but they have left noble examples of their engineering skill. Realizing the necessity of pure water in their great city of Rome, they constructed an aqueduct for the conveyance of water from the hillsides thirty miles distant. This, with the great sewer—The Cloaca Maxima—constitutes works of such stupendous magnitude that they have rarely been equalled or surpassed at the present day. The Roman Empire went the way of the Grecian, the causes being largely (according to those who have studied the social conditions of that period) the epidemics which, often following in the wake of war, devastated its population in the early days of the Christian Era.

Then we come to the history of England in the Middle Ages. It is a terrible story of famine, plague and pestilence. All these were ascribed to supernatural causes, but a knowledge of the habits and living conditions of the people easily explain the causes and prevalence of epidemics. Their habits were filthy, the same clothing was worn night and day without change; the diet was coarse, being chiefly of highly seasoned meat washed down by strong ale or wine. They ate and drank all night. Gluttony, intemperance and fighting were the prominent characteristics of our early British ancestors. It is easy to understand how fever and pestilence was retained in the low and dark dwellings of these people.

The floors, strewn with rushes which partly covered portions of meat or fish and filth of all kinds, often remained uncleaned for twenty years. The narrow, dark and tortuous streets of the towns and cities covered with mud and rushes were filled with filth and abominations of all kinds. There was an absence of sewers or drains. The country people lived in hovels: they were desperately poor; ague and rheumatism were accompaniments of the marshy, undrained lands, and famine frequently decimated the population. If famine were absent, war took its place. The cities were walled fortresses and the streets and roads were infested with robbers and highwaymen. Life was very cheap in those days. The doctrine of the "survival of the fittest" was in practical evidence. Those who survived were husky men of iron constitutions. The habits of the people, their mode of life, their habitations, the movement of armies—all contributed to the spread of epidemics and famine, and they had an abundance of both. In the twelfth century there were *fifteen epidemics* and many famines; in the thirteenth there were *twenty epidemics* and *nineteen famines*. All these spread far and wide and were regarded as visitations of national disaster.

In 1348 the Black Death, believed to have been an aggravated outbreak of the Oriental Plague which was devastating Europe, appeared in England. It was a severely contagious disease and had in some countries left but a quarter of the inhabitants. It spread with frightful rapidity. About 100,000 of the population of London succumbed to its ravages and 50,000 were buried in one immense pit. Throughout Europe it is estimated that 25,000,000 were swept away by this disease.

In 1485 came the Sweating Sickness, originated no doubt by the filthy, unsanitary conditions then prevailing. The mortality included about one-half the male population. In the 15th and 16th centuries it re-appeared no less than five times, the intervals being interspersed with minor pestilences. The vigor of the English race which, in spite of these ravaging plagues, gave us the heroes of Elizabeth's time, our triumph over Spain, and the English Reformation, must indeed have been extraordinary.

The plague followed repeatedly in the 17th century, and was succeeded in 1666 by the great fire of London, a blessing in disguise, destroying as it did the crowded and filthy homes of the metropolis.

Gradually better days dawned. The plague disappeared and although smallpox, jail fever, malignant sore throat, ague, scurvy and other preventible diseases contributed to the excessive mortality of the 17th century, people began to have some knowledge of the principles of prevention.

The gradual improvements in agriculture, manufactures and commerce added to the comforts of life. Food became better and more plentiful. Vegetables, fresh meat, tea and coffee began to take the place of coarse food salt meat and alcoholic drinks. The value of personal cleanliness began to be appreciated. Cotton and linen clothing came into use. The use of soap and washing soda made washing easier, and a sort of rough and ready quarantine was established against disease.

The 18th century is marked by the absence of the three great scourges—the Black Death, the Sweating Sickness and the Plague. The silent influence of increased knowledge had begun its beneficient work; observation and intellectual development had begun to play their part in the prevention of disease.

The pioneers of sanitary science in England were Captain Cook, John Howard and Edward Jenner.

The former demonstrated in his voyage round the world from 1772 to 1775 that scurvy, which was terribly fatal both on land and sea, could not withstand the use by the sailors of fresh vegetables and fruit. In Anson's famous expedition, thirty years previously 600 out of 900 died of scurvy. During Captain Cook's three years' voyage not a single death was due to this disease. It took long years for the lesson to be learned before it became compulsory that lime juice should form part of the equipment of every sea-going vessel.

The name of John Howard will always be remembered as the prison reformer. Jail fever (now recognized as typhus fever) which more recent knowledge has disclosed to be due to vermin (body lice) was the scourge of prisons. John Howard lived the life of an apostle and died a martyr in proving that typhus was a disease due essentially to filth and overcrowding.

We all know—if not by personal experience, at least by general knowledge—that our present day prisons are generally free from preventible disease and that the occurrence therein of any such disease is promptly squelched by the most approved means. It is an actual fact that, barring the chance of Tuberculosis, a prison, so far as communicable disease goes, is one of the safest places in which one can live.

Probably the greatest sanitary triumph of the 18th century was the discovery of Vaccination made by a member of the medical profession. After the disappearance of the plague, smallpox became the greatest scourge of England. Lady Mary Montague had in 1720 introduced the practice of inoculation, without however any definite results in the abatement of smallpox.

This disease was, between the years 1771 to 1781, the cause of 100 out of every 1,000 deaths in London.

Vaccination was introduced by Edward Jenner, in 1796, and before long induced a definite decline in the mortality. In the last ten years of the 18th century the death rate from smallpox was 88 per 1,000. In the first decades of the 19th century it fell from 64 per 1,000 to 11. And at the present day in countries where vaccination is efficiently carried out there is practically no smallpox at all.

I desire to place some stress upon this subject of vaccination. When we do not see this disease, or if we do see it at all it is usually in a mild form, we are apt to regard it too lightly. The public of this country is not protected by vaccination and we never know when a severe type of the disease may arise. It is our duty, therefore, knowing the beneficient value of this protection against smallpox, to be unceasing in advocating this measure.

In 1885 the City of Montreal was free from smallpox. The French Canadians are notoriously negligent of vaccination. A pullman car conductor from Chicago landed in Montreal. Having been taken ill, he was placed in a hospital. The disease was discovered to be smallpox. A servant in the hospital took ill and died of the disease. In a panic the hospital authorities allowed the remaining patients to go to their homes. There was a wide-spread epidemic, and 3,164 persons died of the disease.

When I am asked for proof of the value of vaccination I do not go to Japan or Germany or Great Britain for the most convincing proofs. We have in this province every year more or less scattered outbreaks of this disease. It has never, after our Board has discovered it reached very large dimensions, because we rely practically on one plan, viz., careful and thorough vaccination of every one who has come in contact with a case. This done, we invariably see the end of the outbreak in a couple of weeks.

It is only in places like Niagara Falls, the hot-bed of anti-vaccinationists, that the disease has in recent years made any great progress, and happily we have the means of handling the situation.

The progress made in the prevention of scurvy, in jail reform, and in smallpox prevention had great influence, and we find that the death rate of London in the 17th century—88 per 1,000—was reduced to 50 in the 18th, and in later years to 20 per 1,000.

The first Public Health Act of Great Britain was passed in 1848. Various Acts relating to Pollution of Streams, to Lodging Houses, Nuisances and Prevention of Disease succeeded this.

In 1858 the powers of the General Board of Health were transferred to the Local Government Board under which the various Acts relating to sanitary questions have been consolidated. Much remains to be done no doubt. but it is a sign of progress that the City of London whose experiences with epidemics have been briefly touched upon, whose death rate has been at times in the past so fearfully high, has at the present time the lowest death rate of any city in the world.

Coming to this continent, we may glance for a moment at conditions in the metropolitan city of North American. Less than 50 years ago, 20,000 people in New York were living in cellars; garbage and refuse of all kinds was thrown into the streets; manure stood in alleys year in and year out; there was no drainage; cows were kept in dark, damp stables and fed on swill. The milk was perniciously bad, the best portion of it being water. The death-rate was exactly twice what it is to-day.

Coming to more modern times, I can only very briefly refer to the wonderful saving of human life achieved by such discoveries as the antiseptic system of surgery by Lister, the prevention of rabies by Pasteur, of puerperal fever by the work of Semmelwis and Oliver Wendell Holmes, of diphtheria antitoxin by Behring, of the cause of tuberculosis by Koch, and of those of yellow fever, malaria, hookworm disease, sleeping sickness, typhoid fever, bubonic plague and other affections.

In the roll call of those who have achieved something for their fellows in disease prevention, the members of our profession take no mean place. It is to the eternal credit of the medical profession that they have not only not opposed the progress of means calculated to prevent disease, thereby lessening their own opportunities of remunerative labor, but they have been most active workers in sanitary and disease preventive measures.

This is, comparatively speaking, a new country and our public health history is only about a century old. When the Government of France ceded Canada to Great Britain after the fall of Quebec in 1759, what is now Quebec was the only portion of the country possessing any organized system of government.

In 1794 the Legislature of Lower Canada passed the first laws existent in this country in respect to questions of health. These were rules governing the quarantine of vessels arriving at any of the St. Lawrence ports.

In 1833 an Act to establish Boards of Health was passed by the the cause of the issuance of a proclamation by the Governor, Sir John Colborne, calling upon the magistrates to form Boards of Health, with a view of preventing the further spread of the disease. Thus, the very first movement made along public health lines in Ontario is exactly 80 years old.

In 1833 an Act to establish Boards of Health was pressed by the Legislature of Upper Canada. The recurrence of cholera in 1834 and again in 1849 when the epidemic was a virulent one maintained the activity in public health matters.

In 1849 the Parliament of Upper and Lower Canada passed an Act establishing a Central Board of Health, the first regulations of which were issued from Montreal in June 1849.

This Central Board seems to have died out with the cholera, to be again revived by the return of this pestilence in 1866.

The Regulations of this Board were the only ones in force in this Province until 1882, when the Provincial Board of Health was established and a Public Health Act passed. This Act was revised in 1887, again in 1897, and remained in force until superseded by the revised and consolidated Act of last year (1912).

Since the establishment of the Central Board by the Act of 1849, the same principles have been retained in the Act and Regulations. They are founded largely upon the English law, and the same ideas may be seen in the Public Health Acts of the various Provinces.

The Public Health Act of 1912 is perhaps as modern and up-to-date legislation upon this subject as will be found in any civilized country.

This Act comprises the heads of: —Organization; Isolation and Emergency Hospitals; Indigents; Communicable Diseases; Nuisances; Offensive Trades; Inspection of Lodging Houses and Dairies; Public Water Supply; Sewage Disposal; Ice and Food Supplies; Inspection of Meats, and Slaughter Houses; and Public Health in Unorganized Territories.

The organization consists of:

The Provincial Board of Health, comprising seven members of whom the secretary is the executive officer. There is an Inspector and a Sanitary Inspector, and for a number of years this small force has comprised the whole of the central organization for public health work.

Last year an advance step was taken by the Government in the appointment of seven District Officers of Health, whose whole time will be occupied in supervising the sanitary work of their respective districts.

These officers, after receiving a course of instruction in Public Health Work, commenced their duties in November of last year. The various headquarters are London, Guelph, Hamilton, Belleville, Kingston, North Bay and Fort William.

With the exception of the two officers in New Ontario, the salaries and expenses will be paid by the groups of Counties in each District.

This Province is the first one in Canada to adopt such a system and a tribute to its value, for New York State. The adjacent Province of Quebec has made provisions along the same lines, but the officers have not yet been appointed.

The local organization in the various municipalities will remain the same, except that the number of members of the board will be reduced, and the Medical Officer of Health will in future be a member and the executive officer of the Board.

With a view to having some permanency in this office, so that the efficiency of the Medical Officer of Health may be increased, it is provided that he shall not be dismissed except with the approval of the Provincial Board of Health. The Act further provides for an Annual Conference of the Medical Officers of Health, the first of which was held in Toronto September last. By this means it is hoped that the association with his fellows in the same line of work will be an additional factor in the improvement of the local officer of health.

Public Health questions have in recent years made very great strides in the United States and Canada, and I am proud to say that the Province of Ontario is not lagging in the background. In connection with the Provincial Board we have excellent laboratory facilities in the City of Toronto, in connection with Queen's University at Kingston and with the Hygienic Institute at London.

At these laboratories examination of water for domestic use, of samples of sputum, diphtheria swabs and blood specimens are made free of charge for medical men and municipalities desiring our services. Outfits for collection of laboratory cultures are supplied in quantities to the Medical Officers of Health for distribution to the various medical practitioners, so that the latter may readily send specimens to the laboratory for diagnostic purposes.

In our Toronto laboratory we have given treatment during the last two years to some 200 rabies cases. This treatment, which is given daily for 21 days, is provided at a minimum cost. In this way there has been a saving to the people of the Province of an amount not less than $15,000.

By means of the Experimental Station in connection with our Toronto laboratory, we are able to try out the various means advocated for the purification of water and treatment of sewage. In this way valuable information is secured in respect to these problems, the benefit of which is given gratis to municipalities throughout the Province.

From the new system of District Officers a good deal of improvement in the sanitary conditions of the Province is expected. The fact that they will be freed from the dependence upon private practice will place them in a better position than the local health officers of the Province hitherto have been. No matter how successful municipal authorities have been in other respects, they have been dismal failures in questions relating to public health. Some few of our cities and towns have had vigilant health officers, but these are being constantly hampered by the ignorance or indifference of the Councils.

The new Act will make even the local officer a more independent man who cannot be dismissed at the whim of some interested member of the Council, if he has had the temerity to become energetic in the discharge of his duty.

I have known instances where the wrath of a municipal council descended upon a Medical Officer of Health for "knocking the town" by taking energetic measures to stamp out smallpox or diphtheria.

Believe me, Sir, the hiding of outbreaks of epidemic diseases will always do more harm than their exposure, and the energetic suppression of them. There is no official who may be of greater value to a community than an enthusiastic, up-to-date Health Officer who knows his business and lets nothing prevent him from doing his duty.

Go up to the thriving city of Fort William and ask any one how many babies Dr. Bob Wodehouse saved there last year, and you will obtain the measure of the type of man selected by the Government for the positions of District Officers of Health.

In the summer of 1910 there were in Fort William 62 deaths of babies from summer complaint. Dr. Wodehouse, now one of the

District Officers for that north country, prevailed upon the Council to give him a visiting nurse and an appropriation for the prevention of infant mortality.

In 1911 the deaths were reduced to 22, and in 1912 there were but 6. Is not this practical public health work? Every community has its share of communicable disease. It may be smallpox, scarlet fever, diphtheria or measles. In the smaller communities these are usually taken care of in the household. In the larger towns and cities isolation hospitals become an absolute necessity, because it becomes a serious matter if whole households of wage-earners are subject to enforced idleness.

The sick one, for the sake of the rest of the family and for the careful nursing which cannot be afforded by the poorer people of the community must go to an isolation hospital. This Act provides the means of its establishment. No vote of the people is necessary to raise the money for such purpose. Arbitration is provided if it is sought to place the hospital in an adjacent municipality which does not want it. This dispute is settled by the head of the municipality involved, the Sheriff and the Secretary of the Provincial Board of Health.

Isolation hospitals are placed under the control of local boards of health and must be kept up-to-date in sanitary condition and equipment.

Similarly, local boards of health may establish temporary emergency hospitals, taking buildings and land not in use for such purposes.

It provides that the indigent sick or injured must be cared for by the municipality, and the services of a qualified physician contracted for by the municipal authorities.

The whole subjects of communicable disease—its notification, quarantine and disinfection—is specifically dealt with in this Act. For the first time in the history of the Province Tuberculosis (which has made terrible inroads amongs our population) is required to be notified, and explicit Regulations upon this question are now in force.

The Act deals with the question of nuisances, giving a definition of a nuisance and directing the means whereby such may be abated. Offensive trades and their control receive attention.

Provision is made for the inspection of lodging houses and the air space required for occupants is raised from 400 to 600 cubic feet. In addition, power is given to the Medical Officer of Health to close and placard a house he judges unfit for human habitation until the place is made fit to live in.

There is perhaps no feature of public health that is of greater importance, or which is receiving more attention all over the continent, than the question of public water supplies and sewage disposal. Most of our larger centers have within recent years suffered from the scourge of typhoid fever, which has a very direct connection with water supply and sewage.

The lakes and streams in the United States and Canada are the chief sources of water supply. In the United States especially, these sources of supply have become badly polluted, and we in this Province are fast hastening to a similar condition of affairs

The present Health Act deals very completely with both these subjects. The plans and specifications of works designated by municipalities require the approval of the Provincial Board of Health, and any by-law for the raising of money for either of these purposes must cite the approval of the Board.

In addition, such works must be improved, repaired and maintained to the Board's satisfaction. There is to be found case after case in the Province where a town has spent large sums of money upon sewage disposal, and the works are unused and overgrown with grass. This will not be allowed in the future.

In this connection, the Council of municipalities are helped out by the clause which gives them power to raise money on debentures for such purpose without taking a vote of the people.

Sewage in its raw or untreated state is not allowed any longer to be poured into the waters of the Province. By this law it is hoped to preserve the splendid sources of supply furnished by nature to keep our citizens (in so far as water-supply is concerned) free from the danger of Typhoid fever, and to retain our reputation as a sane, health-living people.

With a view of ascertaining the character and extent of the pollution of the international waters separating Ontario from the United States, the Provincial Board has entered into an arrangement with the International Joint High Commission, comprising three members each from Canada and the United States, to examine, in conjunction with the United States Public Health Service and the State Boards of the different States bordering upon International waters, into and report upon this question. Under this arrangement the Provincial Board supplies the technical workers and the Commission bears the general expenses.

On our side we commenced this work about the 1st of April, and the programme will carry us over the period until October or November next.

Upon the results of this investigation will be based the measures necessary for the preservation in as far as possible of the Great Lakes and rivers dividing us from our southern neighbors.

The care of ice supplies and inspection of meat is dealt with by the Act. In respect to the latter, a number of municipalities desire to establish municipal abattoirs or slaughter houses and to compel all meat used in the municipality to be slaughtered therein. The only satisfactory inspection of meat, in my opinion, is that made at the time of the killing. An animal inspected on foot may look good enough, but may be infected with tuberculosis or some other disease, and similarly a skilful butcher may after the animal is slaughtered remove the traces of the disease.

If such be true, then there must be, to ensure proper inspection, an inspector present at the actual killing. This could only be accomplished by having all meat killed at municipal abattoirs under inspection. How would this regulation be viewed by those who raise cattle and hogs? And how again would it affect the price of meat already so high as to be of serious moment to the family? The Provincial Board has power under the Act to make regulations governing such inspection.

The old statutory by-law relating to sanitary matters in a municipality has been revised and improved. This by-law is in force in every municipality until amended or improved, with the consent of the Provincial Board.

The special regulation in respect to the unorganized portions of the Province have been embodied in the Public Health Act. Power is thereby given to inspect the camps and provide for medical and surgical attendance of the employees on lumber camps, mining and railway construction works.

The lot of the employee in these camps in the old days was perhaps not too bad when he was fit and ready for work. His food was perhaps none too palatable but there was plenty of it, his sleeping quarters were warm but none too well ventilated. If he sustained an accident such as a broken limb, or became the victim of typhoid fever, he was a burden on the camp and was frequently got rid of as readily as possible, being as like as not dumped upon some adjacent town.

Under the Regulations established some years ago all the camps must conform to a certain standard conducive to the health, comfort, convenience and sanitary requirements of the employees. A medical man is required for each camp, monthly inspection is made and all the camps are under the inspectioin and supervision of the officers of the Board.

It is not claimed that the conditions are ideal yet, but there is marked improvement in the diet, living and health conditions such as were unthought of ten or twenty years ago.

Dominion Dental Journal

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THE ONTARIO MEETING

The twenty-third annual meeting of the Ontario Dental Society was held in the College building, Toronto, May 12, 13 and 14. The attendance was less than usual, the character of the papers was different from those of former years, and the clinics were fewer. The exhibits of the manufacturers were varied and interesting. A feature of the meeting was the meeting together of many of the classes of the School of Dentistry.

The general character of dental meetings is changing in the past few years. As the attendance increases the difficulty of giving papers on technical procedures increases. Clinics must be repeated until the clinician is worn out. More time than a convention affords has to be given many subjects before even a reasonable grasp can be got of them. Dental conventions will have to assume more of the post graduate form to attract in the future. Only a few are interested in the business of the dental profession.

Each year programme committees are finding it more difficult than the year before to provide a suitable programme. The programme committee of the Ontario Dental Society has a very high standard set for it each year, a standard that cannot always be attained. Short papers on minor subjects are often more attractive than one or two very comprehensive discourses. Ontario dentists as a rule cannot be induced to prepare papers for their own meeting. They as a class are so busy just now that attending dental conventions is a waste of time.

OFFICERS OF THE ONTARIO DENTAL SOCIETY, 1913-14.

Hon. President, J. A. C. Hoggan, Richmond, Va.; President, W. C. Davey, Morrisburg, Ont.; Vice-President, C. A. Snell, Essex, Ont.; Secretary, W. A. Black, Bank of Commerce, Spadina and College, Toronto; Treasurer, A. W. Ellis.

District Representatives: No. 1—A. W. Winnett, Kingston; No. 2—J. F. Simpson, Trenton; No. 3—P. E. Clarkson, Toronto; No. 4—R. T. McDonald, Hamilton; No. 5—V. L. Heath, Woodstock; No. 6—3 ~~G~~. R. McGregor, Elora; No. 7—P. T. Copeland, St. Marys.

Archivist, C. A. Kennedy, Toronto.

Oral Hygiene Committee: W. C. Trotter (convener), R. J. Reade, R. G. McLaughlin, H. E. Eaton, F. C. Husband.

Programme Committee: G. W. Greive, E. I. Zinkan, J. E. Rhind, D. R. Callum, W. E. Willmott.

Research Committee: A. E. Webster (convener), W. E. Cummer, R. D. Thornton, C. G. Scott, C. A. Corrigan.

OFFICERS OF THE BOARD OF DIRECTORS OF THE ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO.

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ELGIN DENTAL SOCIETY.

The annual meeting of the Elgin Dental Society was held in St. Thomas, April 25th, 1913. Several members from the Middlesex Dental Society were present. Following the banquet held at the Grand Central Hotel, an adjournment was made at the Princess Theatre, where a film was shown on "The Care of the Teeth," after which a very interesting illustrated lecture on the "Treatment of Root Canals" was given by Don. M. Graham, Detroit, Mich.

RECENT GRADUATES OF THE ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO.

John Bolton Aiken, James Christie Allan, George Feilde Allison, Herbert Henwood Armstrong, Douglass Landseer Brown, J. P. Collins, D.D.S., Gerald Vincent Connolly, Percy Elgin Crysler, Hugh Cunningham, D.D.S., Ralsey Clark Davis, D.D.S., John Albert Dean, John Maxwell Dixon, Wilbur John McLaren Dolson, John Richard Doyle, C. H. Fowler, William James Fuller, Lloyd Stafford Godwin, George W. Harris, Wesley Thomas Haynes, William Elijah Hughes, Charles Maurice Joyce, Kenneth Malcolm Johnson, Edgar John Lehman, William Boyd Leatherdale, Joseph Howard Lumsden, Clarence Ross Minns. George Victor Morton, John Montgomery MacKay, L.D.S., Alex D. Mac Pherson, Daniel Alex McCarten, William James McEwen, Edward Franklin McGregor, Donald Alfred Pringle McKay, Wilbur Hamilton McLaughlin, Duncan Robert McLean, Maxwell Richard Parkin, Joseph Victor Pinard, Maurice Pivnick, Carlisle Purdon, Jack Wheaton Reynolds, Gordon Isaac Robertson, Morville William Rutherford, Miss Lulu Maud Ryerse, Herbert Millo Schweitzer, S. J. Shannon, D.D.S.; Richard Charles Herman Staples, Merton Clair Tindale, William Glen Trelford, Carl Edgerton Vandervoort, C. W. Waldron, M.B.; George Allan Wilcox, John Harold Wiltze, Nile Hughes Winn, Silvester Herbert Zinn, J. H. Kelsey, L.D.S., D.D.S., passed the examination for Master of Dental Surgery.

RESULTS OF LAVAL UNIVERSITY DENTAL EXAMINATIONS.

At the D.D.S. examinations just completed, the following candidates have obtained the degree of Doctor of Dental Surgery: T. Asselin, E. Bourgeois, A. Comeau, M. Dérome, A. Deschênes, A. Dionne, R. Doucet, M. Fleury, A. Girard, P. E. Kieffer, J. Lantier, L. LaRocque, A. Lavigne, T. Lavoie, A. Lebrun, T. Lefort, L. Plante, P. E. Poitras, O. Rajotte, W. Saint-Pierre, A. Voisard, of Province of Quebec.

The following candidates have obtained the degree of Bachelor of Dental Surgery: J. DeMontigny, E. Desroches, M. Durand, E. Farrell, P. Fleury, J. H. Fontaine, P. Hamel, E. Hébert, E. Jobin, J. Labrecque, L. Lafond, A. L'Archevêque, A. Melady, F. Rhéaume, V. Rondeau, E. Turgeon.

The Laval University is actually erecting a beautiful building which will be ready for the October term. The new school will accommodate two hundred students. This school is the only one in America teaching exclusively in the French language.

Selections

DECISION IN THE TAGGART-BOYNTON CASE

The following is reproduced from the *Washington Law Reporter* of February 28, 1913. The gist of the decision is contained in the last three paragraphs. But on account of the long-standing interest in this case, we reproduce the entire decision.

We are informed that this is a final decision.—EDITOR.

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA.

GEORGE W. BOYNTON, *Appellant*, *v.* WILLIAM H. TAGGART.

Patents; Prior Public Use.

1. In a suit for the infringement of a patent for making molds for dental inlays and the like, held, upon a review of the evidence, that it was shown beyond a reasonable doubt that for many years prior to the original application the process described in the claims of the patent had been publicly practised on many occasions, and that such prior public use avoided the patent.
2. A decree of the court below enjoining infringement of the patent reversed.

No. 2426. Decided February 25, 1913.

Appeal by defendant from a decree of the Supreme Court of the District of Columbia, in Equity, No. 27,927, enjoining the infringement of a patent. Reversed.

Mr. Fred B. Rhodes, Mr. E. T. Fenwick, Mr. L. L. Morrill and Mr. H. H. Bliss for the appellant.

Messrs. Dryenforth, Lee, Chritton & Wiles and Mr. F. W. Phelps for the appellee.

Mr. Justice Robb delivered the opinion of the Court:

This appeal involves a decree in the Supreme Court of the District in an infringement suit sustaining the validity of letters patent numbered 872,978, granted December 3, 1907, to William H. Taggart, the appellee, upon a divisional application filed July 12, 1907, of original application filed January 12, 1907.

According to the specification the invention relates to "a new and useful improvement in methods for making molds for dental inlays and the like." It is further stated that these molds are particularly designed for the casting of dental fillings of the type known as inlay fillings, but that "they can obviously be used for certain other types of work of a fine grade, one of their principal fields of usefulness being in the formation of other types of dental metal work, as, for instance, bridge work and the like." Searching the original specification we find that the phrase "certain other types of work of a fine grade" was intended to embrace the art of manufacturing special pieces of jewelry, for it is there written: "The process can also be used in the art of manufacturing jewelry wherever it is desired to make a single piece of any kind, as, for instance, where a piece of jewelry is made to order. The manufacturer can carve up a pattern in wax with comparative ease, as the graving operation in wax requires neither the high class of tools nor high manual skill required for graving in metal. . . . After the pattern is completed in wax, the process proceeds as herein set forth and an absolutely perfect duplicate can be obtained." The claims are twelve in number, of which we reproduce the following five as representative:

"1. The process of making patterns for dental inlays and the like, which consists in molding plastic material upon the tooth surface to the size and shape of the desired inlay."

"3. The process which consists in making a pattern of a tooth filling within the cavity to be filled and in contact with the surface thereof, removing the pattern from the cavity, forming about the pattern a mold provided with a sprue, and melting out the pattern."

"6. The process which consists in making a pattern for a cast tooth filling within the cavity to be filled and in contact with the surface thereof, from plastic material capable of being changed from its solid condition, supporting the pattern upon a sprue former, inclosing the pattern in a primary body of mold material supporting the pattern and primary body of mold material within a flask by means of the sprue former, adding a secondary body of mold material, removing the sprue former and removing the pattern from the mold thus formed by way of the sprue."

"8. The process of making molds for casting dental fillings and the like, which consists in forming a pattern of the desired size and shape, forming a mold about said pattern with a depression in the mold adapted to form a crucible forming a sprue hole extending from the depression to the pattern and then removing the pattern."

"12. The method of forming patterns for casting dental inlays, which consists in forming moldable material to the size and shape of the desired inlay in the cavity to be filled and against its walls."

An examination of these claims discloses that they do not cover, nor purport to cover, a new process for filling teeth. On the contrary, they relate solely to the process of making *patterns* out of plastic material or wax and the process of forming a *mold* about such pattern, from which mold a duplicate of the pattern may be produced. The words "dental inlays and the like," as used in the claims of the patent, when read in connection with the specification, as they must be read, clearly embrace "bridge work and the like." It is unnecessary here to determine whether they have even broader signification, although, as previously stated, the specification specifically includes "certain other types of work of a fine grade."

To produce the pattern to which these claims relate, an impression in wax or other plastic material is obtained; that is to say, if a tooth cavity is to be filled wax is first inserted therein, chilled and removed. When thus removed a pattern of the filling has been obtained. Substantially, the same process would be followed in obtaining a pattern for a bridge between other teeth. After obtaining this pattern it is put upon a short piece of wire, technically called a sprue former, initially coated with investment material, and then inclosed in a secondary layer of investment material. This is allowed to set when it is sufficiently heated to volatilize the wax. The mold is then complete and the gold or other metal may be inserted through the sprue hole.

We will here briefly review the prior art. It is not disputed that the art of producing metal castings by means of a mold formed of a wax pattern is very old. It is in evidence that this art was practised by the ancient Greeks and Romans and was extensively used in the Middle Ages for producing statuary and other accurate castings. This process is known as the "Cire Perdue" or "Lost Wax" process. See Simpson Bolland's "Encyclopedia of Founding," page 515. It is conceded that Cellini used this process hundreds of years ago in casting one of his most celebrated statues. It is further conceded that the burnished inlay process was also well known for many years prior to the application for this patent. See Patent No. 402,352 to Robinson, dated April 30, 1889. In that process a piece of platinum or gold foil is placed in the tooth cavity and rubbed or burnished against the walls of the cavity. The foil, then called a matrix, is usually filled with wax so as to conform to the original shape of the tooth, then removed and precisely the same process followed as in the Taggart process; in other words, the only difference between the burnished inlay process and the Taggart process lies in the use of the foil, which subsequently fuses with the "solder" or lower carat gold. The patent to Hollingsworth, No. 708,811, dated September 9, 1902, covers machines for casting dental bridges. The wax pattern in the Hollingsworth process is treated in substantially the same manner disclosed by the Taggart patent, and the casting process disclosed by Hollingsworth in no material way differs from that disclosed by Taggart. The patent to Reese, No. 200,760, dated February 26, 1878, covers a mold for casting dental plates. It is thus seen that it was old long prior to the Taggart patent to manufacture dental castings by the Lost Wax process.

It is conceded that appellant practised the process disclosed by the claims of the patent in suit, the defense being the invalidity of these claims. In addition to the prior art, as disclosed in the patents to which reference has been made, much testimony was introduced by appellant tending to show that the identical process disclosed by this patent was, for more than two years prior to the date of the original application, practised by dentists throughout the country. Of course, if the testimony amounts to proof beyond a reasonable doubt of such prior use, the defense must be sustained, as the claims must fall. Sec. 4886, R. S.; Forncrook v. Root, 127 U.S., 176; Peters v. Active Mfg. Co., 129 U. S., 530. We shall here review that evidence.

Dr. Oscar H. Simpson, of Dodge City, Kan., a dental practitioner since 1882, a graduate of the Ohio College of Dental Surgery, a member of the State Board of Dental Examiners, at one time president of the State Dental Association, and a member of the National Board of Dental Examiners testified that he gave his first inlay clinic in about 1887, and had since given clinics at Topeka, Wichita and Newton, Kan., at the World's Congress of Dentists at St. Louis, and at other places. The witness described his progress in inlay work and further described, in detail, the method he employed in about 1898 to form a dental tip or crown for a boy by the name of Malcolm Judd. Without going into detail it is sufficient to say that the process described by the witness was substantially the process disclosed by the patent in suit. The original apparatus by which the process was practised was introduced in evidence. Not only this but the original work, which had been subsequently removed after performing a useful purpose, was also introduced. While this piece of work was attacked by experts for the complainant we, nevertheless, are fully convinced that the process by which it was made was the process disclosed by the Taggart patent in suit. Dr. Simpson gave other instances of employing this process in his practice. He further testified that in the clinic at Wichita, Kan., in about 1898 or 1899, he described the method which he employed to form the Malcolm Judd tip or crown. In this he was corroborated by Dr. B. L. Shobe, a dentist residing at Bartlesville, Okla., who remembered very distinctly the clinic at Wichita because he then thought the process adapted to a case which was troubling him. After watching the clinic he turned to his home and tried to practice the process but failed. He then consulted Dr. Simpson at Dodge City, learned the cause of his failure, and was thereafter able to practice the process. In his testimony he gave the names and addresses of different persons for whom he did that kind of work. No matrix was employed in the clinic Dr. Simpson gave at Wichita, the wax pattern coming in direct contact with the tooth. A Mr. Lyle S. Henkel, now a locomotive engineer, an entirely disinterested witness, testified in direct corroboration of Dr. Simpson. From 1893 until March, 1897, he studied dentistry with Dr. Simpson, and his testimony is clear and convincing that Dr. Simpson, during that time, practised the process disclosed in complainant's patent in making cast inlays for teeth.

Dr. Judson O. Ball, of Mt. Pleasant, Iowa, a dental practitioner since 1880, testified concerning inlay work. In about 1889 he prepared a tooth cavity, then ground a piece of porcelain to fit the cavity, and cemented the porcelain in place. This was his first work of that kind. In 1894 a Mrs. Shaffer, living at Merrimac, Iowa, sixteen miles from Mt. Pleasant, came by appointment to have a Logan crown set. The crown had been ordered by mail but had not arrived. The Doctor desiring, if possible, to complete the work upon that occasion, took a wax impression and from it, by practising the process disclosed by the patent in issue, produced a casting which he used successfully. He subsequently practised the same process in the spring of 1895 in doing work for Dr. A. O. Pitcher, of Mt. Pleasant, Iowa. Sometime between 1895 and 1899 he employed the process in doing work for Mrs. William Gladden, also of Mt. Pleasant. In his testimony he described the work in detail. During September, 1903, the Doctor set a large inlay for Mr. F. S. Finley, a lawyer of Mt. Pleasant. This inlay was for the right central incisor, decayed on the central proximal, involving both the facial or labial and lingual surfaces of the tooth, and also the lower cutting edge surface. After the cavity was prepared wax was inserted to conform with the labial, lingual and proximal surface of the tooth; in other words, a wax impression of the filling or casing was taken. A casting was then produced by a process substantially the same as that of the Taggart patent. This casting was then cemented in place and has since done service. The original apparatus by which this casting was made was introduced in evidence. The names and addresses of other parties for whom work of a similar character was done by Dr. Ball were given by the witness. Mr. Finley, formerly City Solicitor of Mt. Pleasant, Iowa, his home, testified in corroboration of Dr. Ball. He remembered that some time during the year 1903, when he and Dr. Ball were together in the city council, the Doctor had filled a front tooth for him. The witness was asked what circumstances, if any, impressed this particular occurrence upon his mind, and replied: "The manner of putting this filling in was impressed upon my mind from the fact that the tooth was prepared and an impression taken of the tooth and the filling cast, and cemented into place, which was different from any other filling that Dr. Ball had ever put in for me, and I inquired of the Doctor at the time the filling was put in about the manner of his doing it, and he explained it to me. He told me that he had taken the wax impression of the cavity. I knew that he had done this; he then showed me the apparatus where he had set the wax filling on a point of a cone and put a cylinder over it and then used some substance, something like plaster of paris, to get the form of the filling; he then removed the cylinder with the plaster cast, removed the metal cone, and explained to me how he heated the plaster cast or the wax in the plaster cast, how it would come out and leave the cavity. He then filled the cavity in some way with gold, making the cast which was cemented into my tooth. I merely have his explanation as to how he made the filling, aside from the fact that I knew he took the wax impression, that the filling was put in, in one piece, and he showed me the apparatus where he said he had made it, and explained to me the process of making it as I have explained it above. The witness stated that the apparatus which had been introduced in evidence was exactly the same in principle and similar in fact to the one used in making the casting for his tooth. There was no cross-examination of this witness, nor was an examination sought to be made of the tooth which the testimony showed had been filled in 1903. One Robinson, who had been Dr. Ball's janitor for seventeen years, also testified concerning the Doctor's use of the process here involved.

Dr. Valentine H. Hobson, of Richmond, Ky., testified to the circumstances surrounding the practice, in 1889, of the process of the patent in issue. The Doctor subsequently practised the process for other patients and gave their names and addresses.

Dr. William E. Harper, of Chicago, Ill., a man of wide preliminary training, testified to casting dental bridges by the present process and to the giving of clinics in 1893 or 1894, in which he explained it. The names and addresses of people for whom he had made cast bridges were given.

Dr. Merrill W. Hollingsworth, who, as we have seen in 1902, patented a machine for casting dental bridges and who, therefore, was thoroughly familiar with the lost wax process in the manufacture of dental castings, testified to having made bridge castings by the process in issue as early as 1893, the names and addresses of different people for whom he had made castings being given. Dr. Hollingsworth's testimony was corroborated by Dr. George A. White.

Dr. Jacob G. Schottler, of Milwaukee, Wis.. a practising dentist and also a teacher of dentistry, testified to the casting of a gold inlay in 1898 by the process in issue. This casting was for a patient who refused to have the work done in the old way owing to nervousness. The name of the patient was given.

Dr. George W. Blaesser, of Cedarburg, Wis.; Dr. Emil M. Kapitan, of Manitowoc, Wis.; Dr. John M. Higgins, of Chilton, Wis., all testified in corroboration of Dr. Schottler. A Mr. Thomas H. Savage, a stenographer, testified that Dr. Schottler took a wax impression of one of his teeth that had been broken off, and from this produced a tip which was cemented in place. The witness was asked in cross-examination whether he had any objection to permitting an examination of this tooth by a dental expert, and replied that he had not. The record does not show that any such examination was made, however.

Now we come to the testimony of Dr. George B. Martin, of Frankfort, Ind., who has been engaged in the practice of dentistry since 1884. In 1888 Dr. Martin organized the Indianapolis Post-Graduate School of Prosthetic Dentistry, and was president of the school, and also instructor, his subjects including crown, bridge and inlay work. When he took up the practice of dentistry he was already familiar with the making of patterns for metal castings in other lines of work. The Doctor testified in detail to practising the process here involved and to the disclosure of that process to his students and others. He introduced in evidence various apparatus by which his work was accomplished. His testimony covered a period from 1890 on. Dr. Blain H. Sellers, of Indianapolis, Ind., who attended the Indiana Dental College in 1891 and 1892, during the time Dr. Martin was an instructor and demonstrator of Prosthetic dentistry, testified in corroboration of Dr. Martin. The witness was asked to describe the instruction he received in the casting of bridges and crowns, and replied: "Well, we first took the crown, made the crown to suit yourself, I always did, and then take a piece of wax and place that into the mouth and have the patient bite down onto that, and that would form the bite for the articulation, and then carve the wax any size and shape that we would want the cast itself to be. We would invest that in the plaster of paris, placing into the wax an instrument to act as a sprue; after that part of the investment became hardened we added to that another on top and after that had hardened we removed the two pieces separate and then removed the wax from the mold and we melt our gold and pour it into what we call the die, and then place the counter die on top of that, and the impression would form the cast bridge itself." Drs. Cravens and Bloor, both of Indianapolis, also testified in corroboration of Dr. Martin. Dr. Myron E. Le Galley, of La Fayette, Ind., who was a student at the Indiana Dental College from 1892 to 1895, inclusive, testified in detail as to the instruction which he then received from Dr. Martin in the art of making cast bridges. The testimony of Dr Le Galley is clear and leaves no room for doubt that the process of the patent in suit, as applied to dental bridges, was fully explained to, and understood by him during the time mentioned. It was stipulated that Dr. Clarence Williams, of Terre Haute, Ind.; Dr. W. H. Upjohn, of La Fayette, Ind.; Drs. Johnson and Minnie Howes, of Indianapolis, Ind., if called as witnesses would testify exactly the same as Dr. Le Galley as to the instruction received by them while in attendance at the Indiana Dental College through Dr. Martin, their attendance upon said school covering a period between 1889 and 1897. In addition to these several witnesses, Miss Martha Vories, who was Dr. Martin's assistant for about a year, commencing in 1897, testified to seeing Dr. Martin practise the process in issue. The testimony of this witness shows that she thoroughly understood the process at the time she saw Dr. Martin practise it.

Dr. Joseph Head, of Philadelphia, Pa., whose article on inlays is incorporated in the American Text Book of Prosthetic Dentistry, who is a graduate of the Philadelphia Dental College, a graduate in medicine of the University of Pennsylvania, and a man evidently of wide experience and attainments, testified to the casting by him in the apparatus of Dr. Ball, which had been employed in making the Finley inlay, of a cast inlay. Dr. Head says: "I find that the material and apparatus that I employed and which is stated to have been used by Dr. Ball to be capable of producing an inlay as perfect as any inlay I have ever seen." Dr. Head also produced a cast gold inlay which he had made by the use of the same investment compound and apparatus used by Dr. Simpson, and to which reference has been made. There is other corroborative testimony in the record, but we do not deem it necessary to review it.

Has the defence of prior use been made out? As no two cases are exactly alike, it is apparent that the character of the invention involved, the prior art, and the particular circumstances surrounding each case must be considered in weighing evidence of prior use. The contention in this case that Dr. Taggart's discovery was revolutionary in character is not sustained. On the contrary, as appears from the record art at the time Dr. Taggart applied for his patent, dental castings produced by the lost wax process were well known. Having this in mind, there is nothing improbable about the testimony of appellant's witnesses. Indeed, Dr. Taggart himself, according to his own testimony, was in full possession of the idea involved in these claims more than ten years before he applied for his patent. The thing that most troubled him, and that deferred his patent application, was the production of a machine by which the gold could be quickly and easily forced into the mold after its completion; in other words, the process of producing such patterns and molds, generally speaking, was already well known. The real difficulty, therefore, was in producing a device that would quicken the practice of the process and thus induce the profession generally to make use of it. This is apparent from an examination of Dr. Taggart's bill in this case, wherein he states: "Your orator has expended large sums of money preparing for the market machines and apparatus with which the method of said patent can most readily and perfectly be practised and is now prepared to supply the demand for such machines and apparatus." The Doctor's testimony also shows, we think, that it was the production of these machines that consumed time, and not the evolution of the process.

The testimony which we have reviewed comes from witnesses whose standing is unchallenged in this record. Several of these witnesses are entirely disinterested. Th cross-examination of nearly all of them was confined to a few questions as to the character of the investment material employed, and considerable stress is laid in the brief because one of these witnesses, when recalled, failed to include in the formula then given an ingredient contained in his former answer to a similar question. We attach no importance whatever to this. In the patent itself Dr. Taggart conclusively disproves the contentions of his counsel that it required any special skill to evolve a formula for investment material, for he says: "The sprue former is then used as a handle to support the pattern and the entire pattern is covered with a primary coating of investing material. This investing material may be any one of the various dental investing materials on the market." Moreover, the prior record art contained ample information concerning the investment feature of complainant's patent. The real question which we are called upon to determine from the evidence before us is whether the various dentists who have testified, or any of them, were in possession more than two years prior to the date of the original application for this patent, of the idea attempted to be covered thereby, and whether they, or any of them, gave expression of that idea in a practical and public machine gold inlays and the like may be produced more cheaply and way. It is of no possible consequence that by the use of Dr. Taggart's rapidly than they were produced by dentists who have testified. It is enough if those dentists took a wax impression in the manner described by these claims, and formed a mold around the pattern thus obtained for the purpose of casting a dental inlay or the like. To hold that this was not done, would be arbitrarily to disregard and set at naught the testimony of witnesses whose character and reputation are unimpeached, and whose testimony is reasonable and in entire harmony with the circumstances of this case. We are unwilling to assume such a position. We are fully persuaded that the evidence shows beyond a reasonable doubt that for many years prior to the filling of the original application herein the process of making patterns and molds for dental inlays and the like as expresses in these claims, had been publicly practised upon many occasions. This finding avoids the patent and renders it unnecessary to determine whether the claims thereof were anticipated by the prior record art.

It follows that the decree must be reversed, with costs, and the cause remanded with directions to dismiss the bill.

Reversed and remanded.

—"Dental Digest."

OBITUARY.

Mr. Arthur J. Parry, manager of the Calgary branch of the Temple-Pattison Co., Ltd. (dental supplies), took ill with typhoid-pneumonia on April 10th, and he passed away on the 19th. His brother, Mr. Frank Parry, who is one of the Western salesmen of the same company, brought the body to Toronto and he was buried from St. Thomas' Church on Saturday, the 26th.

Mr. Arthur Parry had been in the employ of the Temple-Pattison Company for about five years, and for the past three years was assistant at their Winnipeg branch, and was promoted to the managership of the Calgary branch on the first of March. Telegrams and a very handsome wreath were received from the Winnipeg Dental Society, and also telegram and a handsome wreath from the Calgary Dental Society.

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MOUTH AND HEALTH

By George Edwin Hunt, M.D., D.D.S., Indianapolis, Indiana.
Dean of Indiana Dental College and Editor of "Oral Hygiene."

Read before the Ontario Dental Society, Toronto, May, 1913.

There is a certain book, perhaps not read quite so much now as it once was, which tells a story about two brothers. One of these brothers was a farmer and the other one was a sheep raiser. Once upon a time, when the crops had been gathered and the lambs successfully reared, the brothers carried their toll to Him from whom they held the land. And because of the excellence of his products the sheep-raising brother found more favor with the Master than the brother engaged in tilling the soil. Noting this, and fired by jealousy, the farmer later murdered his brother while they were together in the fields. When the Master next came to their places he questioned the farmer regarding his brother, saying, "Where is thy brother?" and the farmer answered and said, "I know not. Am I my brother's keeper?"

Since the time Cain put this question to his God the problem, "Am I my brother's keeper?" has vexed the minds of people not a little and for many centuries it was answered by the majority of people in the negative, but as the years and the centuries roll by, the affirmative answer is more and more frequently heard. In the past, when the affirmative answer was given, it was prompted almost altogether from philanthropic, humanitarian, or Christian, if you prefer the term, motives. Some people held the affirmation was true, but only from motives of kindliness and pity. In the last few decades, however, intelligent, thinking people are becoming convinced that each of us should consider ourselves our brother's keeper not only from humane reasons but for economic ones—that not only the sociologic aspect of civilization is involved in the answer to the question, but that it has a decided economic aspect also. Let us investigate the question briefly for ourselves.

The prosperity of a people depends directly upon the amount of material necessary to existence which they individually possess. Not the amount of *money* they have, for money is not a necessity for existence. Money is simply an arbitrary medium of exchange adopted by a people for the sake of convenience. There would be just as much coal and lumber and iron and copper in the world, and just as many chances for raising wheat and corn and cotton and beeves in the world, if there were no so-called money. The issuance of ten millions of dollars of gold certificates by the Government does not add a single grain of corn nor a single pork tenderloin to the world's supply. So, by "material necessary to existence" we mean material which, in either its crude or finished state is useful as food, or for heat, for shelter, for amusement, for education, or for health. So, to repeat, the material prosperity, or the "wealth" of a people depends upon the amount of material necessary to existence which they individually possess. And it is necessary that it be individually owned. To accumulate material necessary to existence in the hands of a few does not increase the prosperity of the many.

In primeval times the matter of existence was a comparatively simple one. I do not mean by that that life was a bed of roses and existence was maintained without labor, but I mean that the individual could and did supply the simple wants of himself and of his dependents without many complications. He fashioned his own weapons, killed his own meat, gathered his own wild fruits and roots and herbs, and erected his own rude shelter. The head of a family was sufficient unto himself. He needed no help and expected none. He was monarch of all he surveyed and what he surveyed was sufficient to his primitive needs.

But as civilization advanced it became more and more complex. The wants of mankind multiplied. Former luxuries became necessities. Also, the more devices, conveniences and comforts that were added to life, the more dependent every man became upon his fellow men, until to-day society is a complex machine where interdependence is absolutely obligatory upon all of us. It is not possible to-day for any of us to himself live, to say nothing of caring for a wife and raising and educating a family, if he were entirely dependent upon his own resources. We need the creative labor of others as they in their turn need our services. Society has become so complex that the withdrawal from activity of any one class for any considerable length of time spells distress and disaster for all. You can imagine what a condition would follow if all those who have and sell groceries should suddenly and unanimously withdraw all groceries from sale. Society would be tremendously affected.

This interdependence of the people is so great in this complex state of civilization called society that grave results may be and in fact are being, gradually brought about by disturbances of the equilibrium established.

To explain that I will have to refresh your memories regarding a few fundamental economic principles.

All members of society can be broadly but correctly divided into producers and non-producers. Producers can be sub-divided into direct producers and indirect producers. And on another basis producers may be divided into full producers and partial producers. Non-producers can be sub-divided into parasites and legitimate non-producers.

Humanity.
Producers. Non-producers.
Direct. Indirect. Parasites. Legitimate non-producers.

Direct producers are those who grow useful things in the ground or on the ground, or dig useful material from the ground, or practice arts or trades by which crude material is fashioned into forms that will be of use to mankind. Farmers, stockraisers, miners, laborers, artisans, and craftsmen of all sorts are producers. The farmer who raises the cotton, the stockman who raises the cattle, the miner who mines the coal, the laborer who digs the cellar, the carpenter who builds the house, are all direct producers. Their labor is directly responsible for producing the crude or finished material necessary to our lives. Without the direct producers the earth would be promptly depopulated.

Now there are many ways by which a direct producer may become a partial or non-producer, and it is desirable that society should guard against such contingencies. If the carpenter or bricklayer is ill, he becomes either a partial producer—not producing to his full capacity—or a complete non-producer, according to the nature and severity of his illness. Or, from lack of general intelligence and training, one who is physically able to be a full producer may be only a partial producer—he is not giving his full quota of production to his fellow men because he has been imperfectly educated and trained. Or from insanitary and unhygienic surroundings in his life, both while working and when not, his capacity for production may be lessened without actual illness being present. And all of these departures from his full productiveness constitute a tax on the labors of those fully productive. Indirect producers minimize this partial or non-productiveness, and by virtue of their ability to do so they have a legitimate position in society. The physician, the nurse, the dentist, the pharmacist, and others, are justified in their existence because their life work increases general production by minimizing the amount of productiveness lost by physical deficiency. And because any man will do his life work better if his mind is trained and his senses cultivated within correct limits, teachers and artists and others who minister to the mind and intellect are correctly indirect producers. Scientists are indirect producers because their work aids immensely the work of both the direct and indirect producers. Other indirect producers are managers of business, such state and municipal servants as are necessary for the proper conduct of our public business, and others whose occupations will suggest themselves to you.

Parasitic non-producers are those who should be producers, by virtue of their age, physical ability and mentality, but who, instead, live at the expense of the producers without making any legitimate return. Tramps, criminals, the "idle rich," "middlemen," brokers, stock exchange operators, promoters, captains of high finance, the men in the army and navy so far as they are men of war, and others, do not produce one iota of material necessary to the welfare of mankind, but instead get their living at the expense of the producers. Some one has to produce all they eat and wear, and since they produce nothing themselves, it follows they are parasites preying on the producing classes. They toil not, neither do they spin.

Legitimate non-producers are persons ethically entitled to a living at the expense of the producers because they are unable, on account of physical or mental deficiency, to make their own livings. Children are rightfully non-producers because their time for producing has not yet arrived. The aged are rightfully non-producers because, it is presumed, they contributed their share of productiveness during their years of virility. The insane, imbeciles and idiots are rightfully non-producers because of their mental deficiency. Cripples and sick people are rightfully non-producers because of their physical incapacity. All of these classes are rightfully entitled to live at the expense of the producing classes. It is not charity, in the sense of alms giving, to care for them. It is a duty. Society owes a living to the aged, who have spent their years of health and strength in producing, but who are destitute and friendless in their old age. It is not a matter of benevolence—it is a plainly defined obligation. The sick and physically unfit are unable to produce and are yet entitled to live. And since they cannot live by their own exertions, it is patent they must be supported by the producing classes. They are therefore legitimate non-producers. Personally, I believe many of the physically unfit should not have been born and that later generations will see the time when imbeciles, insane persons, habitual drunkards, and degenerates are not permitted to procreate and there will hence be a vastly diminished number of them to care for, but until that time comes it is the duty of society to care for them.

Now, since the great problem of all people at all times is to make a living—to feed and clothe themselves and shelter, amuse and educate themselves—and since the amount of food and clothing and artificial heat and shelter, and the other things necessary to civilized existence, is absolutely dependent upon the labor of the direct producers, aided by the efforts of the indirect producers, it necessarily follows that the more producers we have in a state of full productiveness, the greater will be the material prosperity of all. Which brings me back to a statement in the early part of this paper to the effect that economically, as well as sociologically, thinking men and women are more and more inclined to answer in the affirmative the query, "Am I my brother's keeper?"

There are many things which cause men who should be producers, to be either non-productive or only partially productive. The very rich are non-productive because they have discovered the secret of getting others to produce for them, and their secret is, in the main, to own the machinery of production. Many people are non-productive because of laziness or disinclination to work; they find it easier to beg or steal a living than to work for it. Others are only partial producers because they have undertaken work for which they are unfitted. There is many a poor lawyer who might have done well as a shoemaker and many a bad dentist who would have made an admirable motorman. But of all the causes of partial and non-productiveness, none equals, in the extent of its influence, depreciation of vitality, illness, physical deformities, or physical incapacity, however it is produced.

The great economic problem constantly confronting us is how to increase the efficiency of our producers and decrease the number of our non-producers, that the material prosperity of all the people may be increased, for with greater general material prosperity we have a happier, a better educated, a healthier and a more moral people. As has been stated, all non-producers are maintained by the energy of the producers. The immense tax on the producing classes consequent on the maintenance of the idle rich, and due to competition and private monopoly—both equally vicious—is a purely economic question, but one unsuitable for consideration in this paper. But the also enormous tax on the producers for the maintenance of hospitals, penitentiaries, jails, asylums of various sorts, reform schools, houses of detention, and similar institutions, where the physically unfit are maintained in spite of the fact that they contribute nothing toward the maintenance of either themselves or others, while also a purely economic question, is a suitable one for our consideration.

Illness is responsible for a large percentage of the idleness of the world, the non-productiveness, and therefore a large percentage of the poverty. If all the persons in the world who should produce, could and would do so, and our plans for distribution of the material for living were based on humanitarian or ethically economic lines, there would be no poverty anywhere. Furthermore, nearly all the illness in the world is preventable—absolutely preventable. Except for diseases due to inherited sub-normal tissues and organs, all the diseases of life could be abrogated by correct living. So it naturally follows that one of the great sub-problems in this great world problem of increasing the efficiency of our producers and decreasing the number of our non-producers, is the reduction in the percentage of the persons suffering from preventable diseases. That is what the tuberculosis campaign is for; and the movement for better housing laws, the fight against the social evil, the crusade against the white slave traffic, and similar movements, all owe their inception to a desire to better the physical condition of the people—to increase the efficiency of our producers and decrease the number of our non-producers. On this score, Walter Rauschenbusch in his most admirable book entitled "Christianizing the Social Order," says, "The economic organization of a civilized nation ought to be able to keep the people in a state of physical efficiency. In fact, that would be the minimum that would be required of it," and "in the industrial rivalry of nations that nation will finally come out ahead which gives its workers the largest amount of physical health and security, of intellectual initiative, and of social freedom." That this has not been well done in the past, either in this country or in others, must be admitted.

Other branches of medical science have been following this trend of thought and have worked to this end in connection with sociologic, hygienic and economic thinkers and workers for many years, but it has not been until recently that many members of our own profession have seen the light, and even yet a very large proportion of them are in the outer darkness. And it was necessary, I regret to say, for some of our ibrother practitioners in the healing art to quite rudely call our attention to our neglected duty before any of us became sufficiently aroused to make conspicuous progress in the movement. But to-day the question of mouth hygiene is definitely before us, never again to be relegated to obscurity. There will always be members of the dental profession to whom it will be a negligible quantity, just as there are men in the medical profession to whom all phases of hygiene are matters of indifference, but the dental profession, as a profession, can never more ignore and neglect its duty to humanity in this respect. Society will not permit it, for society in general will soon be as well informed concerning the importance of mouth hygiene as it now is regarding the importance of other hygienic measures. That people generally in the past have considered the condition of their mouths as a matter of individual preference and concern, and having no bearing on their general health, or the health and welfare of others, is mainly the fault of the members of the dental profession. And when the people in general come to realize that the condition of their mouths is a matter concerning not only their longevity and physical comfort, but also affecting the health and prosperity of others, that knowledge must come *from* the dental profession.

There is no one thing which contributes more to the health or disease of naturally normal human beings than the condition of the mouth and the use to which it is put. What we eat, how much of it we eat, and how we eat it, is responsible for a large number of the list of human diseases. If you will get it fixed in your mind that nearly all, if not all, of the so-called degenerative diseases—the diseases ascribed to faulty metabolism, malassimilation, mal-nutrition, or whatever you are pleased to call it—are due to what you eat, how much of it you eat, and how you eat it, the importance of the matter will begin to appeal to you. Rheumatism, gout, cancer, gastralgia, gastritis, pyorrhoea, enteritis, cardialgia, diarrhoea, hemorrhoids, colitis, constipation, arterio-sclerosis, neuritis, nephritis, diabetes, all forms of anemia, and the various manifestations of auto-intoxication, depend upon it more or less and many of them entirely.

A discussion of what to eat and how much of it to eat would be interesting and perhaps, valuable, but it would extend this paper unduly and will therefore be excluded. I will only dwell upon it long enough to say that nearly all dentists eat too much and especially of proteid matter. How to eat food bears directly on our subject matter.

Briefly speaking, food consists of carbohydrates, proteids and fats. The digestion of many carbohydrates begins in the mouth and is brought about by the action of the ptyalin in the saliva. Unless digestion of these foods is properly begun in the mouth it will not be properly concluded elsewhere. Therefore, improper mastication of these foods means improper digestion and mal-assimilation of them. Furthermore, although digestion of proteids and fats does not begin in the mouth, their digestion in the remainder of the alimentary tract is delayed and imperfect unless they are properly comminuted in the mouth by the action of the teeth. So that, given persons with an insufficient number of serviceable teeth to properly masticate their food, or persons having the apparatus to properly masticate their food but who fail to do so, and mal-assimilative diseases are as inevitable as death and taxation. Add to this several drachms of pus passing from diseased teeth or gums to the stomach and intestines every twenty-four hours and faulty metabolism is not only inevitable but imminent. So that how food is eaten is a matter of much moment and may well engage our attention.

Another class of diseases absolutely preventible but very prevalent, are the infectious ones. Most infectious diseases are more readily contracted through the mouth than by any other portal of entry to the body. All typhoid germs pass through the mouth and it does not require an imaginative person to guess that some linger there, and since it has been repeatedly shown that other bacteria will exist and flourish for an indefinite time in carious cavities in the teeth, there is no reason to doubt that the organisms of typhoid, tuberculosis, scarlatina, measles, and all of the remainder of the infectious diseases, will also do that. Nodine claims that people are five times as likely to infection through the mouth as through the nose, and while I do not know his authority for this assertion, it is easy to believe. Persons with carious teeth and diseased gums may readily harbor the organisms of any specific disease, and while not ill themselves from that disease, may be perfectly capable of communicating it to others. It is estimated that a person in the act of coughing or sneezing may throw a spray of saliva ten feet through the air—the spray, of course, being germ-laden. With this in mind you can readily realize how easy it is for your neighbor across the car aisle to pelt you in the face with such organisms of specific diseases as he may be cultivating in carious cavities in his mouth.

Most of the tubercular glands about the face and neck are directly infected through neglected pulpless teeth and through pyorrhoea pockets, the organisms reaching the lymphatics through these avenues of entrance. Evans tells of recurrent epidemics of scarlatina in Chicago schools due to convalescents carrying the germs back to school in their neglected mouths. Organisms of specific diseases are capable of germinating and multiplying in neglected mouths for an indefinite time, perhaps to be finally swallowed and produce their specific complaint.

I am not advancing all this as anything new to you. You know it as well as I do. There is no hope on my part of shocking or startling you in this brief statement of facts well known. I have recited them for the purpose of outlining the argument for the assertion that the condition of people's mouths is a matter of public importance and not one of private concern only.

But, granting all the above to be true, what are you going to do about it? If my statements are facts, they condense about as follows: The material prosperity, the health, wealth, intellectual advance, moral worth, happiness and power of a people are economically directly dependent upon the amount of material produced by the direct producers assisted by the indirect producers, less the tax of the non-producers. No one thing tends so much to lessen production as ill-health. The condition of the mouth and the improper use of and lack of care for the mouth is a potent factor in the causation of inefficiency through disease. Therefore, the condition of the mouths of the people may well be a matter of economic concern to the municipality and the commonwealth, and the care of them, for those unable to pay for dental services, a proper function. And again I ask, what are you going to do about it?

The *mores*, the customs of the people, whilst constantly shifting and being made over, are yet wondrously slow in the changing. It took several centuries for the people to conclude that hanging was a trifle too strenuous a punishment for theft, and even yet we have not advanced far enough to decide it is an equally foolish punishment for a graver crime. The *mores*, like the mills of the gods, grind slowly. So we must not expect that the people will soon accept as true, that which I have set forth above. It will take much time, iteration and reiteration to convince them of its sanity. On this point of the reluctance of the people to progressive innovations, Rauschenbusch says "The most important and persistent obstacle of progress is the conservative stupidity and stolidity of human nature. In history, as in physics, the *vis inertiae* rules. Possession is nine points of sociology as well as of law. There are nations and races that have not changed appreciably for ages. To the student of history the astonishing thing is not that the people occasionally rioted and raged, but that they stood all this awful oppression and injustice with such patience and passiveness. Even a highly sensitive and mobile nation like our own rarely budges when the house next door is burning. It waits till its own roof is on fire. For proof I refer to the history of our tariff and labor legislation.

"The passive indifference of the mass of men is backed by the active conservation of the most influential social classes. In every social order the ablest individuals rise to controlling positions and intrench themselves in the places they have attained. Their effort is to preserve for themselves and their children the power and wealth which they have acquired. Knowing the power of the state, they seek to control politics. Knowing the power of public opinion they influence the press and the schools. Their house is built on things as they are; therefore they are against any change—except change that will further fortify their position."

In the latter part of the above quotation Rauchenbusch was speaking of the efforts to ameliorate the condition of the working classes by economic and sociologic changes but what he says is also true of efforts to better their physical condition. In both efforts the inertia of the people opposes itself to change. What was good enough for their fathers and mothers is good enough for them. With the majority of the people, not only whatever is is right, but whatever has been is right. Free dental clinics for the people have never been, therefore they should never be. They would be an undoubted drain on the public treasury and as it has never been practically proven that the economic value of clean mouths will more than offset that drain, the old condition of affairs had better continue. *Et cetera, et cetera, ad libitum, ad infinitum.*

So the hope of getting free clinics for all the poor is at present but an iridescent dream. If you show society how a man may eliminate four or five movements in laying a brick, so that he may increase by several hundred the number of bricks he can lay in a day, you are presenting a concrete proposition apparent to even the less than average intelligence and hence clamourously accepted by all, but when you endeavor to persuade society to spend money in the hope of bettering the physical condition of a class whom the leaders in our governing bodies look upon with a certain degree of scorn as worldly unsuccessful—the poor—with a view of getting the money back by the increased efficiency of those upon whom it is spent, the proposition is too abstract, the train of reasoning too complicated, the possible benefits too remote, for sober consideration. And it is perhaps just as well that this is so, for if clinics for the poor were generally established in the near future there would be no dentists to man them. There are only dentists enough in America now to care for about fifteen per cent. of the population and the addition of thirty per cent. more—assuming that thirty per cent. of the people are unable to pay for dental services—would make the task an absolutely impossible one. So, in handling this problem for the people generally, we are confronted not only with the slow moving mores, the inertia established by centuries of custom, but also by the fact that were we able to change the mores at once, there are not enough dentists in the world to carry the movement through to success.

In this dilemma we are naturally driven along the path of least resistance, as all other leaders in all other social reforms are being driven, to the conclusion that the greatest hope for success in our movement lies in the education of future generations; that the children of the present and the future must be taught the truths we have to teach, so that they and their progeny may reap the economic benefits conditions forbid to those of our own time and age. The mind of the child is receptive; it is capable of being molded and of receiving impressions that would be lost upon the custom hardened intellects of their elders. Any correct hygienic idea instilled into the minds of the children for a generation or two will become a part of the mores of the people. Therefore, we, along with other hygienists, turn the bulk of our attention to the children, only devoting to the adults such effort as is necessary to secure their consent, reluctant though it may be, to teach these truths and to demonstrate these theories upon these little citizens of the state.

And when we survey this, our chosen field for operation, what conditions do we find? Of those factors opposing the successful establishment of the work will generally be found one or more of the following: first, the innate reluctance of the constituted authorities to adopt anything which is an innovation; second, a lack of funds available for the work; third, the indifference of the people; fourth, the impression in the mind of the public that it is a scheme of some sort to increase the practice of the advocates; fifth, the desire on the part of some misguided members of the profession to pose in the lime light for ulterior purposes—this in a measure justifying the impression in the mind of the public as just mentioned; sixth, ill considered and inadvisable plans of operation advanced by inexperienced and over enthusiastic members of the profession. The factors in our favor are: 1st, the rapidly growing impression in the minds of the people that prevention is better than cure and that all hygiene is good hygiene; second, the great receptiveness of our prospective clients, the children; third, the sure co-operation of the teachers and social workers, when they understand the movement.

Overcoming such of the obstacles as exist is a separate problem in each community so far as detail is concerned but perhaps some generalities may be of service in this connection. Dr. Charles E. Bentley, Dr. T. W. McFadden, and others, have emphasized the necessity for enlisting the co-operation of some established charitable organization and the successful clinics have, I believe, all or practically all, been established through the aid of, or by means of affiliations with, sociologic organizations in their respective communities. These organizations have already won the respect and confidence of the community and have established means for raising funds. They can endorse and establish clinics for the children without criticism from the general public or from the constituted authorities, where a body of dentists attempting the same thing would be discredited and fail. The training and experience of their active workers is of the greatest value in the work and when the matter of establishing clinics becomes a real issue, their assistance and co-operation is of immense importance.

To overcome the indifference of the public, enlist the sympathy of the authorities and properly develop the interest of social workers and teachers, a well conceived and persistent educational campaign must be inaugurated. Public talks must be given by competent speakers whenever opportunity affords and opportunities for them should be made if they do not present themselves. The motion picture film "Toothache" is one of the greatest educational aids we have and should be shown in every city, town and village in the country. The use of the stereopticon in connection with addresses is admirable in all respects. Brief but interesting addresses should be made to the school children. The subject should be presented to your patients in your office. The publication of informative newspaper articles should be secured. Briefly, publicity should be obtained by any and all legitimate methods. All this is legitimately within the province of the dental profession. Where the aid of a layman can be secured, the publicity becomes doubly convincing, but until it can be had, the members of the profession should carry the burden themselves.

When the proper amount of publicity has been attained it will be an easy matter to secure permission to inspect the mouths of the school children and this should be done. Not for the sake of adding to the statistics we already have on this subject, but because of the local interest it will arouse. Your community is not much impressed when you tell them that ninety per cent. of the children in some other community need dental attention, but they are stirred to thought, if not action, when you tell them that ninety percent. of their *own* children need the services of a dentist and especially when you tell them why.

If the dentists in any community have gone thus far in their campaign without enlisting the active co-operation of some local, charitable organization, now is the time to do so, unless they have been so fortunate as to have aroused the interests of the school authorities or the health board to the point of action. And when such co-operation has been obtained, the organization should take charge of the administration of the movement, the dentists acting in an advisory capacity from that time on.

The arguments for the care of the children's teeth are numerous and will suggest themselves to you. The time of greatest danger to the teeth of any one is between six and sixteen years of age—practically the school years—and the majority of children if brought through to the age of sixteen with a fair set of teeth, will do well with them for the balance of their lives, especially since good teeth habits will have been established. They will be stronger, healthier men and women, with a greater resistive power to disease.

Every community has a certain per cent. of retarded pupils—pupils who have failed to pass into the higher grades. The cost of educating each child for one year varies in different communities from twenty to fifty dollars per year. So that each half year each pupil is retarded costs the tax payers from ten to twenty-five dollars. The final figures on the cost of retarded pupils are fairly startling. Not all retardation is due to physical defectiveness but the most of it is. And dental defects lead all the rest in importance and in numbers. There is the argument for your tax payers. Elsa Dennison, in "Helping School Children," says, "What's the use of trying to teach arithmetic to a child whose capabilities are at half their maximum because he cannot chew or properly nourish himself?" You do not have to argue the value of mouth hygiene and free clinics with any experienced school teacher. She remembers the scores of pupils absent from school or useless in school because of toothache. And your modern teacher realizes that the anemic, ill nourished, stupid, retarded child is almost certainly one with a foul, defective mouth.

Now a final word to emphasize why this must finally become a community or commonwealth affair. If it were necessary I could give you more statistics than you would listen to without going to sleep, to prove that after a man with an income of nine hundred dollars per year and a couple of children, has paid rent and bought clothing, fuel and provisions, he has no money left with which to pay dental or other kind of bills, but they are unnecessary. You know that. And if this paper has fulfilled my desire it has successfully argued that cared for mouths, properly used, increase efficiency. And increased efficiency means greater productiveness and greater productiveness means greater community and commonwealth prosperity. Therefore, since the community and the state are the ultimate gainers by it, they, or one of them, should shoulder the responsibility and expense. Until they do this all dental clinics for the poor will be on a precarious and uncertain foundation.

DISCUSSION ON DR. HUNT'S PAPER

W. C. Davy, D.D.S., L.D.S., Morrisburg, Ont.

Mr. President and Gentlemen, I am very much pleased at having the opportunity of opening the discussion on this subject. It has long been impressed on my mind that in our public and higher schools, some of the abstract subjects should be taught more than they are. We teach a child mathematics, higher arithmetic, algebra, trigonometry; we teach languages, etc., to children looking for a general education. Profitable as these subjects doubtless are in developing the mind, we must admit in ninety or probably a higher percentage they are of no intrinsic value or usefulness in themselves having fulfilled their destiny when they ceased to be used as means of developing the mind.

We have, however, a goodly number of subjects, perhaps you will say somewhat abstract, but capable of being concretely illustrated so that they may be easily comprehensible and may be grasped by the mind of the primary student if properly presented. These subjects while being taught are just as valuable as mind expanders as the subjects just mentioned and when taught leave impressed on the child principals of life and action which will be useful throughout his existence. I will refer but briefly to two or three. Every person when entering upon life must form judgments and reach conclusions day after day and many times daily, yet the subject of logic is omitted from our school's curriculi and its principles are left to be indirectly taught.

Again every person from the hour he rises in the morning till he retires at night, has to come in contact with his fellowmen. He must inevitably do so. I ask you what principles guide him in such intercourse, do we have any training in our ordinary schools preparing the individual for this unavoidable condition which presents itself almost momentarily? Here the subject of ethics was proved very valuable.

Economy must be observed by the individual, the state and all organizations if prosperity is to characterize us separately and collectively. Yet we have no principles of economics in our schools.

Feeling thus towards these subjects I am most pleased to find one of our number endeavoring to concretely apply an abstract subject to our profession.

Most of our essayist's economic theory I can accept but when he places middlemen, stock brokers, promoters, etc., under the list of parisitic non-producers, I have to take issue with him. For example, we have a large fruit grower, a middleman and a retailer, let us examine the condition of the middleman.

The large direct producer has no care of the local, provincial or foreign market on his mind. He has no staff to look after the final or semi-final distribution of his product. The retailer does not have to spend much time in informing himself regarding location of production or producers, prices, arrangement of shipment, etc. All these are carefully handled for both producer and retail man by the middleman who saves time, labor worry and outlay to both these men and is therefore essential to both, consequently an indirect or more properly a direct producer.

The same might be noted of many classes, the promoter arranges for means of direct production, the men of war secure peace and prosperity to the direct producer, consequently cannot be classed as parasites.

Our civilization has become too complex to-day and too much specialized to eliminate or relegate to the parasitic genus many of these useful and to-day essential and imperative vocations or avocations of mankind.

Another point which the Essayist states is not within the sphere of this paper, but about which he makes an assertion, is that competition and private monopoly are equally vicious. I do not desire to discuss this as he has avoided it, but emphatically disagree with the statement. Either one or other of these conditions must exist and legitimate competition has been found to be healthy.

The Essayist's theory of procreation is one advanced by many to-day, but while the legitimate procreation of imbeciles, insane, drunkards, and degenerates may be prohibited we have still the problem of their illegitimate procreation, an immense proposition.

The Essayist says, "except for disease due to inherited sub-normal tissues and organs all the diseases of life could be abrogated by correct living." This statement I consider extremely eutopiastic (if I may coin the word) and he might not even except diseases due to inherited sub-normal tissues and organs where such an ideal state of immunity as he suggests exists, because then life would be so perfect that bacteria would not have the opportunity to infect those inherited sub-normal tissues any more than they would to infect those sub-normal tissues due to many mental or physical over taxations or exposures of the normally healthy individual.

One thing we are pleased to note is that while our profession may have been dilatory in taking up the oral hygiene campaign and had to be aroused by our sister profession, we can proudly point to our progress in the matter of oral hygiene and can ask our sister profession to show any such phenomenal progress she has attained. Indeed such strides have been made that to-day the proposition glaring the dental profession in the face is how are we going to meet the demand made on us. Either a vastly greater number of dentists must be produced or the advocates for oral hygiene must cease advocating at least for a time its wholesale practice. To-day if every dentist could get every patient to practice oral hygiene to its full extent it would require double the dentists now in practice to care properly for the mouths of those who are now demanding mediocre care of the teeth and mouth.

The Essayist remarks about what we eat, how much of it we eat and how we eat it, faulty metabolism, mal-assimilation and mal-nutrition are also alas too true. The food problem is pregnant and producing daily legitimate offspring fathered by mal-mastication and gluttony which I will venture the statement produce more of the world's incompetence and unproductiveness than all other evils combined, and I might go further and say that mal-mastication and gluttony are causes of more of the predominant evils of the world to-day than any other one thing. To be convinced of this all one has to do is to read some of Horace Fletcher's work and consider what gluttony means, viz.: oversatisfying of appetites, most of them false.

I note with pleasure the emphasis put by the Essayist upon the deleterious effect and social danger of carious teeth. As stated, the mouth probably is the most prolific source of danger to the individual and those coming in contact with that individual.

I observe the happy grasp the Essayist has of political power shown by his apt quotation and subsequent remarks. Perhaps it might be expressed thus, the politician is the man who voices the opinion of the people at the present moment and can see what they shortly will want and who suggests it as something original just before the public have realized they want it. He does not present to the people their *needs* though they may be plain to him, but rather fulfills and forecasts their *desires*. This shows us distinctly that not to legislative halls are we to look for much assistance in the early stages of our campaign, but must influence public opinion which when strong enough will receive endorsation, commendation and support by the law of the land.

We deplore the many retarding influences mentioned by our Essayist, but thank God for the potent factors which will ultimately bring success.

I most heartily commend the suggestion that in our work some local society *apparently* take the initiative and that our work in many of its phases be carried out at the request of that society. This deprives the ignorant public of any opportunity of ascribing mercenary or other improper motives to the dentist and as these societies often have enrolled members who are numbered among the "unsaved" they feel themselves philanthropists when their society suggests the needed changes and suddenly they become most enthusiastic and helpful supporters.

Another most impressive factor in establishing favorable public opinion, mentioned by the Essayist, is the obtaining of local statistics as to the deplorable condition of the children's mouths and showing by practical statistics the increased capabilities after proper attention has been given.

The essence of the paper we might sum up by saying that the mouth is one of the chief sources of bodily ills which in their turn most detract from the individual productiveness, consequently must be considered as one of the chief sources of lack of maximum individual possession of material necessary to existence which is the ideal of economics, and consequently a matter for public control.

President and gentlemen I consider this paper has been handled in a masterly way from the abstract to the concrete, offering many valuable suggestions and I wish in conclusion to most heartily congratulate the Essayist on his magnificent effort.

C. A. CORRIGAN, D.D.S., L.D.S., Toronto, Ont.

Mr. Chairman, Ladies and Gentlemen:

In my estimation, we are indebted to Dr. Hunt for presenting to us such an excellent paper in every way. From the literary standpoint it was well thought out, splendidly arranged and beautifully expressed. I envy any man the literary ability to write such a paper. From a professional standpoint he is to be congratulated. He has not given us a paper on some little technical or mechanical point in dentistry, valuable and necessary as such may be. He has taken us out of our operating room and laboratories and has presented to our view the larger vision, the broader boundless field of usefulness upon which our profession is just entering, the field of public service, the field of prevention rather than cure. He has adhered closely to the title, "The Economic value of a clean mouth," ignoring entirely the philanthropic humanitarian and other aspects of the case. This is a commercial age. The business man is supreme. He is honored and respected as never before The decrease in the consumption of intoxicating liquors of late years is due I think, quite as much to the sentiment against it in the business world as to the active propaganda of temperance reformers, and if the fact that a clean, healthy mouth has a distinct economic value to the individual and to the community can be spread broadcast and impressed upon the minds of the people, there is no doubt that abundant support will be given to the great and important movement in which we as a profession are so vitally interested. And the importance of the movement is already being recognized in the business world. In Germany and the United States several large manufacturing concerns have established their own private dental clinics.

We have of late heard and read a great deal about the conservation of National resources, timber, waterfalls, minerals, pulpwood etc. Now why is all this activity, this effort toward increasing the production, eliminating the waste of our National resources, what is the purpose of conservation? If I interpret it aright it is to give an easy physical existence to man. It is to reduce the intensity of the struggle for existence to a secondary place and thus give an opportunity for development to a higher intellectual and spiritual level. But if the conservation of National resources is for man, it is an obvious suggestion that man himself should be concerned and such is one of the main purposes of government, of remedial legislation, of innummerable organizations, philanthropic and otherwise. The science of medicine, political economy, politics and sociology are largely directed to this end. Looking at him as a National or Social asset, you will agree with me that man is valuable precisely in proportion to the quantity and quality of the work that he can do and anything that prevents him from attaining the highest possible state of working efficiency cause national loss or waste. The wonder is that in these highly practical and commercial days, when nothing short of the greatest possible mechanical efficiency in a well constructed steam engine, for instance, will satisfy, I say, the wonder is that the study of the promotion and conservation of the energy of the individual has not made more progress. But not until the value of population as a national asset is fully comprehended will any people be prepared to exercise systematically, either as individual or as a community, the precaution necessary either to maintain, or to improve its health, to the highest degree possible under its particular environment.

To my mind, of all notable achievements of science during the 19th century, none has been so pregnant for the welfare and happiness of mankind as that of scientific medicine especially as regards the prevention of infectious diseases. Physicians of earlier periods, in complete ignorance of man's potent enemy the disease germ, considered sickness a necessary evil and gave their entire attention to its cure, but now that the cause and nature of so many pestilences have been disclosed, there is a growing realization that it is incomparably better economy to institute measures which will prevent the outbreak of an epidemic than to take up the fight after the contagion has gained a foothold.

The day is not far distant I hope when the dental profession will take its place beside the medical profession in the great work of promoting and preserving the health of the great mass of the population.

I believe we have a great right to be pleased with the progress already made in this direction and in so short a time. Surely the initiation of dental inspection in the public schools and the establishment of four public dental clinics is a start in the right direction.

As some one has said whatever we wish to see introduced into the life of a nation must first be introduced into its schools. It is a very difficult, if not impossible matter, to reform the habits of years in the adult, but the mind of the child is plastic and may be so molded that the men and women of to-morrow will be deeply impressed by the value of our teaching and oral hygiene will be made a vital and necessary condition in the lives of those to follow us.

Only yesterday as I was entering the house a young lad and his sister were playing on the verandah next door. The boy aged four said to me, "I see you got your awnings up," and the little sister not quite three years old put her face against the bars of the verandah as she was too short to see over and said, "I'm going to get a new tooth brush." Now to me that remark was significant, it indicated that some dentist had taken the trouble to impress that child's mother with the necessity of beginning early the care of children's teeth. In all probability from that small seed sown that child, her children and children's children may be blessed with good teeth.

As to the means of furthering the great movement it seems that those methods in vogue at the present are appearing quite effective. I am sure that the student graduating this year is leaving his Alma Mater with much greater appreciation of the dignity of the value of his vocation than we who graduated nine or ten years ago. I think effort should be made to teach not only the student of dentistry, but the men already practising, that the dentist is more than a specialized mechanic, but is truly a member of the healing art.

What we need also is some institution liberally supported, where men of ability can spend their whole time in scientific research and experimental work in the interests of the profession.

There was just one part in this excellent paper that I feel I must take decided objection and as a member of the Militia I must object to Dr. Hunt's classifying the army and navy as parasitic, non producers, the same as tramps and criminals and I think he said stock brokers. While they are not active producers and do constitute an enormous expense on the community, still I claim they are useful and even necessary. Dr. Hunt will surely admit that peace and security to person and property are almost as great an economic factor as caring for the health. He would hardly call the legal profession, our police force and the army and navy enemies to international peace. The influence may be largely passive but powerful nevertheless. No man nowadays would advocate war for war's sake, but the time has not yet come in the history of nations when force can be eliminated as a factor in international disputes and until that time comes the maintenance of an army and navy is a necessity, and if so, can hardly be classed as parasites.

WALLACE SECCOMBE, D.D.S., L.D.S., Toronto, Ont.

Mr. President, Dr. Hunt, Ladies and Gentlemen:

When the Programme Committee announced that Dr. George Hunt would be present at this convention, the members of the profession looked forward with pleasure and anticipated much profit from his visit. Those of you who have heard Dr. Hunt's paper to-night must agree that we have not been disappointed. We have not only enjoyed Dr. Hunt's paper but also the discussion by Dr. Davy and Dr. Corrigan.

Our society is honored to-night by the presence of so many ladies. Members will be glad to know that most of these young ladies are connected with the Nursing Staff of the Toronto Public Schools. There is no more self-sacrificing or more efficient staff of school nurses upon this continent than that presided over by Miss Rogers in connection with the Medical Inspection of Toronto Schools, and we appreciate very much their presence here to-night.

In Canada, oral hygiene committees have, in their propaganda, sought to lay particular stress upon the *health value* of a clean mouth, rather than upon the *economic value* of good health. They have for the most part endeavored to educate the public to a realization that there is a definite relationship between good teeth and good health and that many systemic diseases have their origin in the oral cavity. While in most cases the citizen of average intelligence is impressed with the "good health" argument yet it cannot be denied that in many cases the economic argument may be added to advantage, and the matter thus placed in a more convincing way.

We have to thank the Essayist for bringing this phase of the subject to our attention and have no doubt members of our oral hygiene committees will profit thereby.

Generally speaking, however, it is impossible to estimate life or health in dollars and cents. There are those who take paper and pencil and estimate the exact value in dollars of a child at any given age. While in the final analysis it must be admitted that these things cannot be valued in so many dollars, yet many striking arguments may be made in this way.

The Essayist has undoubtedly established the relationship between good teeth and good health and the economic value of good health to both the individual and the state. His argument is that:—

"Care of the mouth means increased efficiency. Increased efficiency means greater productiveness. Greater productiveness means greater community wealth. Therefore the state should shoulder the responsibility and expense of dental clinics for those unable to pay regular dental fees. The condition of people's mouths is a matter of public importance and not of private concern only."

As an interesting sidelight on this program Dr. Hunt has here and there drawn aside the curtain and given us a glimpse into his personal views concerning the broad underlying social and economic problems of society. Dr. Hunt is in favor of the application of Eugenics. Against tariff and militarism. Against competition. Such a creed would almost qualify one for membership in a Socialist party and, while the more conservative of us might not care to subscribe to such a program, we should give the Socialist credit for endeavoring, from his standpoint, to put Christian principles in concrete form and establish a real brotherhood. When that time comes, if it ever does, the doctors and dentists will be working for the state and drawing their salaries as civil servants.

But under present social and economic conditions the Essayist admits that universal clinics for the poor are but an irridescent dream. Before such a program could be put in practice we would have to reconstruct our whole social and economic relations and adopt the principle of co-operation rather than competition.

A clean mouth has an economic value quite independent of its health value. Salesmen, clerks and all employes dealing directly with the public are worth more to their employer with clean teeth and healthy mouths, than they would be otherwise. Not only does the employer profit but also the employee. A clean mouth means dollars to the individual himself. For example,—Two young men working side by side, of equal ability and attainment and equally prepared to occupy a more advanced position. The one careless in his personal habits with unhealthy and unclean mouth; the other most careful in such matters and with healthy mouth and clean teeth. The latter is chosen for the position of advancement and with an increase in salary of $1,000 a year. Capitalized at 5 per cent., the advance represents to that young man $20,000. Such a man might fairly argue that the economic value of a clean mouth in his case was $20,000. Thus a clean mouth has an economic value quite independent of its health value, and this represents dollars to a man's employer as well as to himself.

The Essayist has said that at the present time there are dentists sufficient for only 15 per cent. of the population and we may, on this ground alone, rule out as impracticable any plan which has in view the state dental care of adults.

The oral hygiene campaign must necessarily be one of education and prevention. This means that in so far as clinics are concerned they should be organized for children only. Such a program appeals strongly to governing bodies. Educationalists are everywhere recognizing that hygiene and right-living should be a more integral part of our educational system. A child cannot be pauperized. Each one is entitled to the best possible chance in life and since every citizen is either an asset to, or a charge upon, the state, the state should have the privilege of sharing with the parents, the responsibility for the physical, mental, and moral training of the child.

Frances Burnett has said "One entire generation of all the world of children, developed as they might be, would more than begin the millenium."

In these days when we have a Commission of Conservation for the purpose of conserving forests, streams, water-powers and scenery, it is not too much to ask our governing bodies to conserve the health of the child and correct the present conditions where a large percentage of children are allowed to die before the end of the seventh year while many who survive this period emerge organically defective.

I am in entire accord with the position of the Essayist on the subject of Eugenics though the scope of our subject to-night does not permit of a discussion of that question.

Dr. Hunt has said that when the people in general come to realize that the condition of their mouths is a matter concerning their longevity and physical comfort, that knowledge must come from the Dental Profession. The onus of conducting an education campaign for the general public certainly rests upon the dental profession and must ever rest there. In prosecuting such a campaign it is necessary for the profession to become agreed upon what an ideal dentifrice should contain. Pickerill has raised a doubt in the minds of many as to whether a dentifrice should be slightly acid or alkaline. I am glad to know that there is to come before this convention a suggestion that a Commission on Research be established to properly organize the work of research in this province to the end that dental diseases may be prevented. May we not hope that as time goes on these debated subjects may be placed upon a more scientific basis.

The Educational Campaign should be carried on in the many ways which the Essayist has indicated. There should be established dental clinics for school children that the dental habits of the child of today, may be established upon a proper basis and we may then hope that the preventive teaching which they receive will go far in overcoming the present ravages of Dental Caries.

In conclusion, Gentlemen, let me emphasize what the Essayist has said in reard to the present need for dental surgeons. I believe this is one of the greatest problems affecting the dental profession at this moment and while it will require solution in every civilized country, there is no community where the need is greater than in the Dominion of Canada. A study of our present population, the immigration returns for this year, the immigation returns for last year and the probabilities in the years to come, along with the increased demand for dental service, places upon the shoulders of the dental profession the necessity of the members of the profession making a personal effort to direct worthy young men into the ranks of dentistry. A young man entering dental college this coming Fall will not graduate until the Spring of 1917 so that it can be readily seen that the time for action is now. If the profession does not rise to the necessity of the case there will, in the years to come, be an undoubted lowering of the present standards due to a public demand for dentists which the profession will have failed to meet.

DR. HUNT: I want to say in explanation of this film, because I have had a good deal to do in getting it up and selling it, that it was not built for showing to dentists, that was not the intention. The film was made to show the general public and you will note what will seem to be to you certain inconsistencies. For instance in the examination of school childrens' mouths the examination is very rapidly conducted, and there will be other points, for instance the relief of toothache in the dental office is conducted with such extreme celerity you will probably want to know the particular brand the gentleman uses. But those things are necessary in a motion picture, and I want you to not look at it from the critical standpoint of the dentist, but remember that it was built and gotten up for the laity. (Applause).

DR. HUNT: Mr. President, Ladies and Gentlemen, I will keep you but a short time because the hour is getting late. It was a great pleasure to me to bring a spark or two of fire from Brother Davy, and I wish I might have a little time with him to convert him to good old Socialism. He is not much of a Socialist because he don't know much about it. Everybody that knows anything about Socialism is a Socialist. When he talks about the middleman being a boon to anyone on the face of the earth except the middleman, that marks him as absolutely unknown to Socialism and unknowing of Socialism. The growers of onions down in Texas are putting advertisements in the papers in every large city in the United States offering to send by parcel post any amount from one pound to eleven pounds of onions at an absurdly small price in their effort to eliminate the middleman. In England you know what Lloyd George is doing in his efforts to eliminate the middleman. In Chicago they are having a regular war about the middleman, and if the middleman does good to anybody on earth except the middleman I don't know who it is.

Now my friend Corrigan belongs to the militia and I have profound respect for the militia; next to the police (Laughter) I respect the militia. They always call in the militia after the police fail. What I said was that as far as they were men of war, that is, kill people and did things of that character, that I considered the men in the army and navy parasites, not producers, and I stick to it. If Brother Corrigan and Brother Davy will go into this question of Socialism a little further, and I recommend them to read Walter Rauschenbusch's book, they will understand that as soon as we Socialists have our way we won't have any more war and we won't have any use for the army and navy. When it comes to going down to the Isthmus of Panama and cleaning up the Canal zone, I can respect them very profoundly, but when it comes to going over to the Phillipine Islands and killing off a number of Spaniards, as we did a few years ago, I do not think that is a legitimate use to which to put the money or men of any nation in the world. I don't believe in war.

Now another thing Brother Davy doesn't know much about is this question of the procreation of the imbecile and the habitual criminal and so on. We have had for many years in the State of Indiana a law permitting us to sterilize habitual criminals and it has been made operative over a thousand times. There were, some years ago, eight other States which had followed the Indiana law, and many more trying to get the Indiana law. I just mentioned that in a paragraph, although I wrote a paper on it some time ago and read it in Kansas City. It is possible to stop the procreation of those physically unfit and it has been done. In the United States the proportion of the insane is increasing fifteen per cent. more rapidly than the population of the United States is increasing. Now then that is due very largely to congenital troubles, not only congenital idiocy and imbecility, but to congenital malformations which result in insanity, and it is a question we have simply got to face sometime in the near future. You can't build insane hospitals and asylums for the feeble minded and epileptics fast enough to take care of them, or you won't be able to in a short time, owing to the rapid procreation which is occurring among them, but the problem is solvable and is being solved and has been solved in many of the United States.

Now Brother Davy further believes we have to have either competition or private monopoly. I don't think so at all. He believes in the benign influence of friendly rivalry and competition. We have gone all through this competition era, my dear friends; we went through that completely and thoroughly and just about as unsuccessfully as one could want to go through any phase of existence, and we are right now in the age of private monopoly. I do not recall any place in the history of the world where a nation has gone through any sociological phase and then has returned to it, and I do not think you will ever find the United States or Canada going back to the era of competition. Mr. Woodrow Wilson doesn't think as I do about that and that is one of the things which I think shows a little lack of intelligence on the part of Woodrow Wilson, (Laughter). He thinks we can go back to competition. I don't think so. I don't think the history of the world ever showed a case where a nation did return to the sociological form it had passed through and abandoned, so I put that behind me. Now, we are in the age of private monopoly, and I don't know how your bank account looks but it hasn't improved mine a bit and I am "agin" it on that account. If I were a captain of high finance I probably wouldn't take the stand that I have in regard to private monopoly, but the only monopoly I have is a monopoly of the work upon my own desk, and I am against private monopoly and am for co-operation, about which Brother Davy never has heard evidently.

Brother Corrigan spoke about the members of the legal profession not being parasites. I didn't mention them because I thought maybe some of you here had brothers or fathers who were lawyers and I didn't want to be too offensive, but I consider lawyers the worst kind of parasites. I wouldn't class them as anything else than parasites on Society. I believe this, I believe we have to have laws—I am not an anarchist, I am just a Socialist—I believe we have to have certain laws to govern us and I believe that since we do have to have certain laws and since we are human beings we will have to have some men to interpret those laws, in other words, we will have to have some judges, and on account of that same fact, that we are human and have human impulses, we have to have policemen to help enforce these laws, but I don't believe there is any necessity for having lawyers. I would do away with the lawyers, and I believe if you have a just judge that he ought to be able to decide things on the statement of facts and what he can learn from the two contestants.

Brother Corrigan in his appeal for the army and navy led you to believe that the army and navy make for peace, and that is why they are good things; that they permit you to labor in peace, and he said that no man in this day and age would be for war for war's sake. Now, I don't believe he has been reading the papers lately. There has recently been an expose in Germany that pretty thoroughly convinced everybody that the Krupp concern of gun and armor makers, has been fostering war news for war's sake absolutely, or for Krupp's sake, if you would rather have it put that way, and we have every reason to believe there is a similar desire to foster war on the part of certain people in the United States and Canada that would profit by war. They have done worse things—I won't say worse, but things very nearly as bad, for the sake of gain, and why shouldn't they foster war? I do not believe the statement that there is nobody who would foster war for war's sake.

In regard to something that Brother Seccombe says. When my civilization comes around—it is on the way too, faster than you think—the dentists and physicians will be paid by the State. I believe in that. I honestly think it would be a fine thing, absolutely a fine thing. You that are worrying about quacks and advertising men and men that practice illegally, if you will help us bring about the state of affairs where physicians and dentists are employed by the State and are paid fixed salaries, you will wipe it all out quick. The first thing that occurs to you is that that would deaden ambition. It wouldn't. A man goes into the railroad business or into the post-office or into any line of mercantile or manufacturing starts at the bottom and works himself up and endeavors and looks forward to the time when he will be the general superintendent of the railroad or perhaps the president, or member of the board of directors—and there is no reason why dentistry and medicine should not be exactly on the same plane. When a young man is first graduated from school he gets a clientele which are not able to pay very large fees for dental work, and as he shows his ability he is called, just as the railroad employee is called, from one position to another, his fees being increased as he rises in his profession until he gets a good remuneration. Suppose that, when a patient sat down in your chair and opened his mouth and you made an examination, you had absolutely nothing to think of but what was the best thing to do for this patient; what you could do that would put this mouth in the very best condition, I don't think for a minute that any of you here would do this that I am about to mention, but you and I know there are dentists all over the world that do this very thing, and that is, instead of thinking what is the best thing they can do for this patient, they think, what can I do for this patient that I can get done the quickest and get the money the quickest by. That is true, otherwise we would not have gold crowns on front teeth and we would not have a whole lot of things we have in dentistry, that you and I know we have, and that you and I know is not correct. You will do away with all that when you have a community dentist; you will have no further trouble from the advertising quack or from the man who does hasty work or unacceptable work. So I invite you all to come and join my party; don't have anything to do with Davy and Corrigan because they don't know anything about this matter. Come with me. I thank you.

THE PRESIDENT: Dr. Hunt's reference to President Wilson brings me back to the fact that I happen to live down in the State which produced President Wilson and their party was very enthusiastic about the returns of the recent election. At that time there was a story told in regard to a man who lived in Illinois. He came home the evening of the election and said to his wife, "Kate, get up and pack, we are going to leave this State where every danged man votes Democrat." While she was packing he went out to see how the election was getting on and he came back and he said, "Kate, you needn't pack, there is no place to go." (Laughter).

Gentlemen, I am sure we have all enjoyed Dr. Hunt's address, his lecture, his discussion and his picture. I know that Dr. Hunt is famous throughout the whole of the continent for the work he is doing, and I will have very much pleasure in delivering to him a vote of thanks which Dr. Webster will move.

DR. WEBSTER: Mr. President and Gentlemen. I could not allow this opportunity to pass without saying a few words in connection with the work Dr. Hunt is doing. For a great number of years Dr. Hunt has been very well known to a number of organizations in the United States, such as the Faculties' Association, the Institute of Dental Pedagogics and the State Society of Indiana and the Tri-State Society of Indiana, Ohio and Michigan. Dr. Hunt has taken up the work of oral hygiene, after laying down his pen from the Indiana Dental Journal which lived but a short time but had a very eventful career. The present publication of which he is now the editor is doing a great social work throughout the United States, and I don't believe there is any factor in connection with dentistry doing a greater work than that publication. It is a great privilege to have Dr. Hunt here to address this audience and let the dentists of Canada see the man who writes those articles on oral hygiene. I want to say also, he has had a great deal to do with the production of the film which you have seen. There are things about that film, as he says, that are not suited for a dental audience but they are suited for a public audience. The first time I saw this film I concluded there was a good deal in it that might as well be eliminated, but after thinking it over more carefully I believe now that it fulfills as well as any film could do what it sets out to teach.

We have had the pleasure of hearing Dr. Hunt and hearing him close the discussion which is just an intimation of the manner in which he handles a subject when he is not required to write it. I have great pleasure in moving a vote of thanks to Dr. Hunt for his admirable address. (Applause).

THE PRESIDENT: You have heard the motion. Dr. Hunt, I have very much pleasure indeed in expressing the fact that the members of the Ontario Dental Society are heartily in sympathy with the work you are doing, that they take a great deal of pleasure in having you here and that while they have not the real feeling of true Socialism yet they hope sometime they will at least know Socialism as well as you do. (Applause).

PRESIDENT'S ADDRESS

A. J. Morrow, D.D.S., L.D.S., Maxville, Ont.

Read before the Eastern Ontario Dental Association, Ottawa, May, 1913

Gentlemen,—It is not without much misgivings as to my ability to give an address that I appear before you this evening, because you have heard so many that were excellent of composition and rich in material of importance, not only to this society, but also to the profession at large.

Nevertheless, I will endeavor to place before you a few suggestions or questions which I consider require the attention of the profession in its relation to itself and to the public.

Not that I do not think that many are doing their duty, but that the bringing of these subjects up may induce a discussion which ought to give us a clearer idea of our required duties.

Why was it possible for the pioneers of the profession to induce the government of its day to grant a license to practice dentistry? Was it to protect a certain class of favored subjects in a lucrative calling, or was it to protect the public by allowing only efficient and competent persons to engage in this particular branch of public health? I consider that it was to protect a growing profession so that it might have an opportunity of developing along lines which would be most beneficial to a dependent public.

Therefore, it is our duty not only that we have received a license to practice dentistry, but also as honored and trusted citizens of a great country to perform our duties faithfully, not only in the actual work of dentistry, but also by teaching our patients the most approved methods of oral hygiene by keeping ourselves posted in the best and most approved methods of practice and by entering into as much research work as our circumstances will permit. There is no doubt in my mind but that we are all performing our operations faithfully and efficiently, but are we paying as much attention to the proper instruction of our patients or to the keeping of ourselves properly posted or to research work as we should?

True, there is much research work being done in Eastern Ontario along these lines. The Ottawa dentists have established free dental clinics, which are open twice a week in one of the leading hospitals and are well patronized.

They have just completed an examination of the school children's teeth in a certain section of the city, a report of which, I expect, will be given during this meeting, which no doubt will be interesting and instructive. But they are not the only ones who are at work. The Cornwall dentists have taken up the examination of school children's teeth, and I understand that Kingston is doing the same good work along these lines. And it is altogether likely that there are other places doing some work, and we would like to know the results of their labors.

We have with us Dr. McCullough, of Toronto, Chief Health Officer of Ontario, who will read us a paper on "Evolution of Public Health in Ontario"; and Dr. Laidlaw, of Ottawa, who will give us a paper on "A Plea for Treatment of Pyorrhea Alveolaris by Vaccine"—both important papers by outside men; as well as a number of valuable papers and clinics by capable men of the profession procured by a responsible committee, as you will see by the programme.

Is this not an excellent opportunity of acquiring information as well as entering into the discussions and imparting our views that others may benefit thereby.

Yet there is only a small percentage of the dentists of Eastern Ontario enrolled as members of this society.

The part to take into consideration is how the pioneers of the profession prevailed on the Government to grant a license to practice dentistry by demonstrating to it the necessity of protection to give the best results in the interests of the public.

Now, we as a profession to-day see the great need for further aid in the conservation of public oral health. And to obtain this we must all, not merely the faithful few, take up the work earnestly, do our part faithfully, and when the public see its value and call for its continuance we shall without doubt receive both government and municipal support and aid to carry on the great work. And as a result of our united efforts we shall see a stronger, better and more intelligent race growing up around us.

DISCUSSION ON PRESIDENT'S ADDRESS.

W. R. GREENE, D.D.S., L.D.S., Ottawa, Ont.

Our President has touched on many interesting and important subjects, and has pressed his ideals in such a manner as to inspire his hearers to better endeavor in the interests of dentistry.

The thought that we ought to do credit to the good name which has been handed down by those who have preceded us has often kept many of us in the path of rectitude. Ought not the thought of his obligation to the pioneers of dentistry help to steady and strengthen the dentist of to-day in his endeavor to further the cause of his chosen profession?

We are all justly gratified to see the position dentistry is taking as a profession, and its continued advancement must necessarily depend upon those who best understand the conditions and are most directly interested. If the dentist wishes dentistry to occupy the high position which is waiting for it, he must act and work with that end in view.

The free dental clinic at the hospital, which is being so splendidly supported by the dentists of Ottawa, is growing, and we hope will soon be patronized to such an extent that it will be too much for the dentists to look after and the municipality will have to take it off our hands.

The examination of the school children's teeth is but educative in its object and results so far. It does not move the people of Ottawa very profoundly to read that 95 per cent. of the children in the schools of New York have defective teeth. But when it is demonstrated that practically the same conditions prevail in Ottawa and in our own homes as prevail elsewhere, it forces the people to take notice. This work should and must ultimately be taken over by the municipality. Ottawa is already about twenty-five years behind German cities in this work.

Last year in my address as President of the Ontario Dental Society I advocated the forming of a Dominion Oral Hygiene Educational Committee, whose main object should be to bring this matter before the Conservation Commission of Canada, for of all the resources of our country there is none more vital and none being depleted more markedly than the teeth of the children, our future citizens. This weakens their constitution, marring their happiness and efficiency. We were told at that meeting that a certain body of men, over whom we have no control, viz., Canadian Oral Prophylactic Society, were constituted a Dominion committee.

I am still of opinion that such a committee should be formed, and that this work should be carried forward. I am aware that some of those same men would be on such a committee if formed, because of the interest they have shown in oral hygiene and because of their standing in the profession.

The President is to be congratulated on the comprehensiveness of his address and the high ideals therein contained.

PARAFFIN COMPOUND AS A ROOT CANAL FILLING

H. Winters, D.D.S., L.D.S., Ottawa, Ont.

Read before the Eastern Ontario Dental Association, Ottawa, May, 1913.

The filling of root canals is one of the most important, if not the most important, tasks the dental surgeon is called upon to perform. The importance of the work has called forth a multitude of investigators and almost innumerable materials and methods of introduction. As the operation is fundamental to all restorative procedure, it justifies the study and time spent upon it.

One writer has described 250 different materials and combinations of the same and their methods of application, but paraffin and bismuth trioxide are not among them; indeed it is among the newest methods of dealing with these operations.

Are we not more and more preaching the conservation of the teeth, and as our preaching bears fruit more teeth that were formerly removed are made to serve either by the restoration of the crowns or as attachments for various prosthetic appliances.

The object of filling root canals is to replace the artificially or pathologically destroyed pulp with a solid, unchangeable, inert substance. If the canal is not filled, serum seeps into it from the appical tissues. This serum furnishes nutrient material for micro-organisms present in the dentinal tubuli of the primarily infected canals, or should the canal be sterile, the serum that finds egress may become infected via the circulation. According to Miller Mayrhofer and others, a root filling material should have the following qualifications:—

(1) The material should be non-putrifactive..

(2) It should possess permanent antiseptic qualities.

(3) It should be easy of introduction.

(4) It should not irritate the soft tissues beyond the foramen.

(5) It should not discolor the tooth substance.

(6) It should not be porous, and should remain unchanged in form.

(7) It should be easily removed in case of necessity.

(8) It should seal the dentinal tubuli and foramana hermetically.

(9) If possible, it should offer some resistance to the Roentgen rays so as to furnish an opaque shadow picture.

Out of the great mass of materials that have been advocated and used, only a very few comply with the above demands. Silk, cotton, asbestos, wood, paints, lead, amalgam, gutta percha, chloro percha, salol, balsams, resinous compounds and cements have been used with more or less success, with more failures to the credit of cotton and silk than all others combined.

Such well known operators as Ottolingue and Jenkins recommend oxy. chloride of zinc as the most practical, but the difficulty of introducing cements so as to completely fill a tortuous canal and the difficulty of removing it, should necessity arise, precludes it as a material meeting the requirements. Metal points are no longer used. Gutta percha and its various combinations with cements have been very widely used in the United States and Canada, while the semi-solid pastes are mostly used in England and in Europe. Experimental work has proven that the latter are valueless, as they prevent the egress of moisture only temporarily. Of the waxes, the insoluable hard paraffin has given most excellent results, and it is with this substance that I will deal this morning.

History.—Tomes in 1883 and Hutchison in 1894 described a method of filling canals with paraffin, but their early efforts were failures, as they used a paraffin with a low melting point, and it was found that the material disappeared from the canals by absorbtion, yet it was observed that the infection of the canals seldom occurred. This observation was made by Tomes, Trauner, Rhien and Prinz. The latter has shown by an exhaustive series of experiments, conducted at the Washington University research laboratory, that hard paraffin, *i.e.*, those that melt from 131 degrees to 133 degrees F., remain unchanged in the root canals. They injected the material under the skin of Guiana pigs, and allowed it to remain for six months, not causing the slightest reaction, and then removed it, finding that it had become incapsulated with a tough fibrous tissue, but had not changed in bulk nor weight. Since paraffin is colorless, it is desirable that some coloring material be added that will not stain the tooth and that will render the filling material opaque to the X Rays. After a long search, bismuth trioxide was found to fill the requirements, having the advantage over bismuth sulnitrate in that it contains 18 per cent. more metallic bismuth, and is hence more resistant to the X Rays. It is desirable that the material be slightly antiseptic, and thymol was chosen because of its peculiar action on animal tissues. Its only action in a root filling material is to inhibit the growth of bacteria at the canal ends of the dentinal tubuli.

The following is the formula of paraffin root filling compound:—Thymol, 2 parts; bismuth trioxide, 30 parts; hard paraffin, 68 parts. Melting point, 131 to 133 degress F.

Technique.—The secret of successful paraffin root canal filling is an absolutely dry root canal; to accomplish this we may use the hot blast, the electrically heated canal dryer, bibulous paper cones, cotton, to be followed by flowing the canals with acetone in which a small quantity of thymol has been dissolved. The acetone has a very marked affinity for moisture, at the same time dissolving any fatty substances that may be present. This is to be followed by a heated iron till all hissing sound ceases. We must guard against over-drying so as not to destroy the gelatinous matrix of the tooth. When a root canal is kept moist by continuous seepage and is dried out with acetone and a heated wire, the seepage usually stops immediately. A wisp of cotton wrapped on a broach is then moistened with paraffin oil or liquid petrolatum and passed into the dry canal, and immediately followed by a hot air blast, so that every portion of the canal is covered by a film of oil. This lubricating of the canal constitutes an important factor in the correct technique of paraffin root filling method.

A cone of paraffin compound is now inserted into the canal and pushed up as far as may be, and the heated root dryer passed along its side, by a gentle pumping motion the air is expelled, and the semi-liquid paraffin is allowed to flow into the canal. The film of previously introduced paraffin oil and the paraffin compound possess great affinity for each other, and wherever the oil film has been deposited the compound will readily flow. Sufficient paraffin compound is now added to completely fill the canal.

It has been suggested by Dunning, of New York, that gutta percha cones be forced into the softened paraffin, thus ensuring a more completely filled canal. The paraffin compound is finally covered with oxy. phosphate or oxy. chloride cement. The position of the patient in filling the root canals of the lower jaw is self-explanatory. In filling the canals of the upper teeth the chair is tilted backward so as to obtain a horizontal position of the upper teeth. As capilliary attraction plays an important role in the procedure, the paraffin compound will readily follow the heated wire.

A No. 16 or 18 copper wire, with a one-inch coil, from which a 3-inch extension tapered is made, makes a suitable instrument both for drying the canals and introducing the compound.

Recapitulation.—Hard paraffin having a melting point of 133 to 136 degrees F., with the addition of 30 per cent. bismuth trioxide and 2 per cent. thymol, possesses the following qualities as a root canal filling material:—

(1) It is non-putrefactive.

(2) It is sterile and slightly antiseptic.

(3) It is easily introduced.

(4) It is absolutely non-irritating to the soft tissues when forced beyond the foramen of a deciduous or permanent tooth; it is borne by the soft tissues without the slightest reaction.

(5) It does not discolor the tooth structure; it possesses a distinctly yellow tint, which makes it readily discernible to the eye.

(6) It is non-porous and unchangeable; it produces an absolutely permanent and water-tight filling.

(7) It is easily removed.

(8) It will seal hermetically the dentinal tubulis and farmana against bacterial invasion.

(9) It is opaque to the Roentgen rays.

A PLEA FOR VACCINE TREATMENT IN PYORRHEA

By CAMPBELL LAIDLAW, B.A., M.D., Pathologist, St. Luke's Hospital, Ottawa, Canada.

Read before the Eastern Ontario Dental Association, Ottawa, May, 1913

Mr. President and Gentlemen:

The best introduction to the subject which you have so kindly invited me to join with you in discussing to-day, would be, I should think, a word concerning Immunity, with a brief consideration of those ideas first held a foundation to our present knowledge of Vaccine therapy.
by Sir Alworth Wright in regard to it, which have served as so excellent

More than a century ago the investigations of Jenner resulted in the discovery of an assured means of producing an artificial immunity against small pox. Since that time many attempts have been made to bring about an active physiological prophylaxis in other diseases. But not until comparatively recent times, when Pasteur achieved fame, and Koch introduced his tuberculin treatment for tuberculosis, had any but empirical efforts been put forth which aimed at securing what might be termed a "toxic cure for toxic diseases." Although Koch's practice of inoculating with bacterial elements fell far short of realizing happy results his idea of stimulating the body cells to cope with disease by introducing the elements of disease paved the way for Wright's Opsonic theory and his inoculation methods.

As to the possibilities attending these much is hoped for and whether or not we are in agreement with those who claim for them such a glowing outlook, yet we must all concede a large measure of truth to the words of that bacteriologist who said, "The seed he (Wright) sowed, has flourished greatly and it would appear that to a new, a scientific system of medicine, the impulse has now been given."

What are the meaning and value to us of that which calls forth such an opinion? We must find our answer in first looking to a definition of the opsonic theory and next contemplating its significance in practice.

Briefly stated the theory is that amongst the various protected substances in blood, there are resident in the serum certain antibodies (named by Wright "ospsonius"—a word derived from the Greek verb, "opsono," "I prepare food for") which, when in combustion with bacteria render the latter a prey to phagocytes, and without which there can be no phagocytosis, that there are various kinds of opsonius, each kind being specifically related to some species of pathogenic organism; so that according as there is a greater or less amount of a particular opsonin present in any patient's serum so will that patient be correspondingly the more or less fit to battle with the associated organisms.

By ingenious methods Wright was successful in devising means for the comparative estimation of this opsonic content in the blood of different individuals, his technique making plain the fact that the white-blood cells of normal individuals are capable, by reason of the opsonin present in their serum of ingesting a greater number of any species of micro-organisms than the white-blood cells of an individual infected by that organism. Furthermore his technical and clinical investigations led him to the finding that whereas a lowered resistance means a low opsonic content, this content may be artificially increased by appropriate administration of the toxin of the infecting organism. The significance for us, then, of Wright's researches, is our understanding of the relationship existing between an infective focus and the state of constitutional resistance. In the case of Pyorrhoea, e. g. we recognize the presence of a local focus and we speak of it perhaps as a local disease; or on the other hand we may lay stress upon the condition of lowered resistance, and think primarily of some constitutional impairment as being responsible for the malady. But we must no longer regard as separate and distinct, but as interdependent, such manifestations in an individual which represent a particular condition such as an osteomgelitis on the one hand, and the usually associated constitutional derangement on the other. It may be the case that individuals of a certain type prone to suffer from a certain class of diseases and possessing certain characteristic tendencies are more apt to be the victims of Pyorrhoea, but be this as it may, the patient with Pyorrhoea suffers from it because of a lowered immunity to the bacterian or bacteria present in the pus, originating in a condition of oral sepsis.

Repeated examinations of the opsonin content of the serum of individuals suffering from such conditions as Furunculosis, Acne, Sycosis, Urethitis, Cystitis, Orchitis, Colitis, Adenitis, etc, show that as the clinical symptoms improve in character the constitutional resistance rises, and that with artificial stimuli applied in the form of the toxins of the respective organisms producing the conditions, oftentimes and in some affections always remarkable results supervene when the toxin is judiciously applied.

In the case of Porrhoea, is it not reasonable to assume then that much may be achieved by treatment with vaccines with a view to raising individual resistance so that a possible cure might be affected or at least further unison of the infecting organism limited.

Some years ago a patient with pus literally running from the margins of several gums presented himself for treatment at the out-patient department of a London hospital. From the pus was isolated an avirulent streptococcus pyogenes. The surgeon dentist to the hospital ordered prepared a vaccine from the cultures, inoculated the patient and in a few weeks discharged him cured. I was unable to follow the subsequent history of the patient.

My own experience of treatment of such cases is extremely limited, but they might to my mind reasonably fall into the same category as some other pustular affections of which every inoculator is bound to have a more or less wide experience, with for the most part satisfactory results.

A case of pyorrhoea which came under my observation three years ago in which pus oozed from the root of one tooth, yielded, in so far as I could discern, to a course of inoculations with a stapheglococcus vaccine prepared from the pus. The patient being without means refused to see a dentist so that my interest was not greatly stimulated. At any rate though in my ignorance of dentistry I could not say that the patient was cured, certainly the pus disappeared and the tooth still remained tightened in place two years after treatment.

Lately my interest in alveolar conditions has revived on account of reports from members of your profession here who have referred patients for treatment. Without exception the reports have indicated favorable progress. The patients themselves too have reported a constitutional change for the better, which one would anticipate to follow upon a limitation of toxin absorption.

The method followed has simply consisted in isolation of the various causal organisms from the pus, the culturing of these upon appropriate media—agar-agar, blood serum, etc.—the scraping off of the growth and its emulsification in normal saline solution, its sterilization at 60 degrees C. for 1 hour; standardization by estimating the number of bacteria per c.c. of solution; testing to prove sterility, and finally inoculating from time to time with such quantities as seem to be indicated by a gauge of the reactions induced.

In considering such a method of treatment—which although subject to modifications might be justly termed Wright's method, it might be well to disabuse our minds of any impression that we may have of its being a method claiming results per se. Wright's system of therapeutics amounts to considerably more than the mere introduction of bacterial elements. What it may be in reference to Riggs' disease can be appreciated by considering its relation to disease in general for it embraces a theory and practice so broad in their scope as to reflect every rational procedure ordinarily employed in the treatment of infectious processes, e.g., the well known treatments of rest, suitable diet, massage and graduated exercise, fomenting in the case of inflammations, the excision of offending parts, the proper drainage of abscess cavities and sinuses, special medicinal remedies for ensuring the highest possible standard of metabolism—in short every scientific measure aiming at the conservation of tissue vitality, the limitation of morbid activity at the site of pathological lesions, the stimulation of the defensive forces of the body by the introduction of toxic materials from without, and the bringing of blood laden with protective substances to foci of injection.

We must readily comprehend therefore that far from standing upon narrow ground, this method, while making a plea for a trial is one of the aids in solving the problem of the scourge—Pyorrhoea Alveolaris, with which your profession is confronted—clearly dictates that the care and supervision of the malady must ever lie within the sphere of scientific dentistry.

In thanking you for your kind attention let me say that I am far from feeling insensible of the honor which you have done me in asking me to be present with you to-day.

ORTHODONTIA

S. W. Bradley, D. D. S., L. D. S., Richmond Ont.

Read before Eastern Ontario Dental Association, Ottawa, May 1 and 2, 1913.

In presenting this paper my desire is to first interest my confreres in towns and villages, who are not practising this art, to do so with the assurance of beneficial results to their patients and themselves, and to show those, who may send their patients requiring orthodontic treatment to specialists, and also general practitioners not doing this work, that a possession of a fair knowledge is a necessity affording them great assistance in both operative and prosthetic dentistry. Personally I do not think I would ever have attempted to correct any cases of malocclusion had I not been compelled to. There was no person but myself to do the work in my locality and as this affliction is quite common, I had to "get busy" or lose patients, and I needed them very badly. The short-cut methods were tried for a time and resulted in enough disappointments to enable me to emphatically say there are few or no short-cuts in this work.

Books on the subject are the first requisite to one who would succeed. The first book I had was Guilford's Orthodontia, and if I had never opened it, but used my college notes, my failures would have been fewer. Next a copy of Dr. Angle's Malocclusion of the Teeth, seventh edition, was procured and by following it better success was achieved, but it was difficult not to fall into the error of trying to use easy methods. It is six years since Dr. Angle issued the seventh edition of his work and as he has made many discoveries and improved his appliances since, we may expect a new edition before a great while. Other books from which benefit will be derived are the Chapters on Orthodontia by Dr. Pullen, in Johnson's Operative Dentistry; Orthodontics, by Dr. B. E. Lischer, is a new book which came out a year ago. Dr. Lischer has given us another book, Elements of Orthodontia, which is especially useful to a beginner in showing the technique of soldering the different forms of bands and the proper method of making retaining appliances. The American Text Book of Operative Dentistry, 1911 edition, has two hundred pages on Orthodontia, by Dr. Angle and a splendid chapter by Dr. Calven S. Case, on Dento-facial Orthopedia. All the dental journals have articles on the subject which present many views, for there is lots of room for diversity of opinion in Orthodontia.

After books you want good models of the case in hand for study. I used Stent's compound for a time but of late have used plaster of Paris and, while my models are not works of art, they are much better and clearer with plaster as an impression material than with compound. As your models increase in number and you have a few cases completed your pleasure in them will be so great that money would not buy them from you.

Having the models before you, the problem of extraction may come up. Here is chance to fail or succeed. Do not extract a tooth until you have studied the models separately and in occlusion and, if you decide to extract, don't do it for at least a week after you have determined definitely to do so. Have your patients come in and study their profile, consult Angle's book and chances are you will not destroy the arch. Now there are cases of patients of from sixteen to twenty-five, who come to you with perhaps the lower first molars missing and the upper anterior teeth in a jumble. Here is a case where you might extract an upper first biscuspid to make room for interlocked cuspids or laterals and by doing so, you will straighten the teeth but chances are the profile will not be much improved. Another case where we might extract is a tooth posterior to the cuspids standing inside or outside the arch and the remaining teeth in fair occlusion, but with patients from eight to fifteen years, who can afford the time and expense of having the work done properly our duty is to do it so. Normal occlusion is the end in view and we cannot have this when we extract. When leaders in the art as Angle, Pullen, Lischer and Hume, say never extract, except in cases of supernumerary teeth, we ordinary mortals should be very careful. Dr. Case advises extraction in cases of bimaxillary protrusion. In his practice he extracts on an average of one case out of thirty to thirty-five, belonging to Class 1, and one in twenty of Class 2. (Dr. Angle's Classification.)

What appliances shall be necessary? with the alignment arch, adjustable anchor bands for molars, plain bands for the other teeth, brass and silk ligatures and rubber wedges nearly every kind of tooth movement may be accomplished. Since Dr. Pullen devised the divided expansion arch, jack screws are unnecessary and we are rid of a painful and awkward appliance. With the divided arch two cuspids in lingual occlusion can be brought outside the opposing teeth just as quickly as you dare move them and with less trouble to your patient.

While a patient is undergoing treatment the expansion arches, bands and ligatures hold food debris, and unless very great care is taken in caring for the teeth caries will develop. The patient must be made to realize the necessity of extra care. The Hutax brush smallest size, with a mouth wash as Formolid Magnesia will keep the teeth clean and the mouth wholesome during treatment. Insist on a thorough brushing before retiring, on rising and fair care during the day. At any visit when the appliances are changed, clean the teeth with rubber and bristle polishing disks using pumice as the cleanser.

Proper retention of the corrected case is most important, perhaps the most important part of the whole procedure. The teeth must be held in their new positions till bone fills the spaces lately occupied by them. As the case is progressing a means of retention will be found, generally a very simple appliance too if normal occlusion has been obtained. The simpler the retainer the less probability of caries developing Have your patient drop in once a month that you may see that everything is alright. Older patients require much longer retention than a young person whose bones are still developing. Do not be in a hurry removing your retainer, better to leave it on three months too long than remove it a week too soon.

The younger the patient is, the more easily you can move the teeth. Most of my patients are from ten to fourteen years. Where central incisors are spreading draw them together as soon as they erupt far enough to get hands on. But be sure it is not a case of abnormal frenum. If it is they will not remain together unless this muscle is trimmed out and the tissues cauterized. Dr. E. A. Bogue, of New York, is expanding the arches of decidous teeth that the permanent teeth may erupt normally. I do not know anything about this procedure.

You have heard it said, and most of you have said so yourselves that you cannot make orthodontia pay in general practice. You say you do not have the time to practice it. Make time and make it pay as well or better than the other branches of your work. Fees will be just what you make them. During the first couple of years I stated definite fees before beginning cases. In a couple of cases the fee was finished before I was half finished. The cases were completed but there was not the same pleasure in it as when I was paid for working. Now I do not state a definite fee and unless I am sure of my patients ability to settle when the case is completed, collect monthly. With some, a retainer is necessary when you begin the work. It keeps the patient's parents more interested in the case and appointments will not be carelessly broken. I estimate my fees from the time of taking impressions, making models, etc., at the same rate per hour as I get for my operative and prosthetic work. Computing in this way you make a pleasant change from routine work pay well. We do not deserve and need not expect the same fee as a specialist receives.

To any general practitioner who uses what he may think are easier or shorter methods than found in the standard works on Orthodontia only disappointment and failure will result. To any who jump in without serious study of some or all of the books named and any others he may procure my advice is "Don't do it," but to any one of you who wish to add pleasant and profitable work to what you have, begin as soon as you feel you are prepared. Try easy cases at first, aim at normal occlusion and do not hurry. Remember you are growing bone, not merely correcting irregular teeth. I seldom see a patient more than once a week after I get a case well under way, sometimes only once in two or three weeks. At my branch office which I visit once a week I generally have a case or two under treatment. Of course warn your patients to come at once if any bands or ligatures loosen. To city practitioners where they are specialists, and to those who do not wish to practise this branch of dentistry a general study of Orthodontia will lead them to fully realize the necessity of doing their utmost to preserve the temporary teeth till the six year molars erupt any way. These are the most important guides to normal occlusion and the child has a better chance of having the anterior permanent teeth erupt normally when these are in proper position. If they are not in normal occlusion, it is impossible for the incoming teeth to occlude correctly. Warn parents about those four big teeth which come in behind the first teeth when the child is about six, and try to preserve the second and first temporary molars till the permanent ones erupt. We have all seen cases of caries and pyorrhoea aggravated by maloccluded teeth, we have all seen the distorted faces of children and adults with protruding upper or lower incisors, some have seen the enlarged tonsils and adenoid growths which generally go with these cases of protrusion. We all know the evil results of a poor breathing apparatus to a child and it is our duty to try to remedy these evils or, if not able to, at least diagnose them and send the afflicted to those who can remedy the trouble. The study of Orthodontia will lead us all to fully realize that the teeth are part of a perfect whole. In our operative work it teaches us to restore teeth to natural outline and not make those beautiful sloping amalgam fillings that Dr. Webster so often spoke of at college. How often do we insert artificial dentures occluding perfectly, perfect as far as utility is concerned, but not at all perfect with respect to size, shape or shade? Orthodontia teaches us that when artificial teeth are arranged in such a manner that the arch lines differ from the facial outline inharmony is produced and our work is not an ornament but rather a misfit, a break in regular features. Orthodontia teaches us to consider our prosthetic work as only a part which must be in harmony with the whole. It teaches us to look at the whole facial contour not merely the mouth and to endeavor to so arrange the teeth, that they not only masticate properly but harmonize with the facial lines.

UNION DENTAL MEETING AT MONCTON.

The Maritime Provinces will have a Union Dental Meeting in Moncton, July 8th, 9th and 10th, 1913.

THE USE OF MEDICAMENTS IN THE IMMEDIATE EXTIRPATION OF PULPS

R. E. Sparks, D.D.S., L.D.S., Kingston, Ont.

Read before the Eastern Ontario Dental Association, Ottawa, May 1 and 2, 1913.

It is not the purpose of the essayist to give an exhaustive treatise upon the subject of the paper, but rather to describe the methods and medicaments used by the writer in the hope of provoking a discussion which may afford an interchange of ideas upon the subject. The objects of pulp extirpation are twofold:

1. That a tooth having exposed or diseased pulp may be filled or crowned with the probability of preservation in comfort, and

2. To obtain access to the nerve canal for an anchorage for a crown, inlay or abuttment for bridge work.

In the latter case where it is purposed to remove the crown, a simple method, in single root teeth, is to decrown and remove the pulp immediately. To do this, cut a groove at the desired point on the labial surface and one on the lingual surface. Have in readiness a stick of wedgewood having a long, slender point, soaked in some strong disinfectant, as carbolic acid, bichloride of mercury, or formaldehyde. Place the edes of a pair of excising forceps in the grooves cut in the tooth. A slight pressure on the handles will remove the crown in an instant. The shock produces temporary anaesthesia of the pulp. At once introduce the sterilized wooden point and give a smart tap or two with a mallet, driving it to the end of the canal. The point may be withdrawn and the canal washed out and apical foramen closed or it may be twisted off and enlarging the canal proceeded with at once. If, however, the tooth to be treated is largely decayed, which is usually the case, it is more satisfactory to produce anaesthesia by cocaine under pressure. If the crown has to be removed under such conditions, it will usually be found that the decay will have proceeded above where the crown would be excised, in which case the excision would fail to anaesthetize the pulp.

I regard the introduction of pressure anaesthesia as one of the greatest blessings that has come to the dental profession in recent years. Cocaine dissolved in a solution adrenalin chloride makes an ideal anaesthetic. The adrenalin is supposed to localize the effect of the cocaine and also prevents subsequent hemorrhage. Anaesthesia is produced by absorption of the cocaine into the circulation of the pulp. This is more speedily produced by pressure. To exert pressure some recommend to fill the cavity with raw vulcanite and pierce it with the needle of a hypodermic syringe which contains a few drops of the anaesthetic; pressure is made upon the piston. Others saturate a small pledget of absorbent cotton, or piece of punk, and place it in the cavity, cover with vulcanite or wax and exert pressure thereon. To diffuse the pressure a larger pledget of cotton may be placed over the contents of the cavity to receive the ball of the burnisher or other instrument used to produce the pressure.

In all cases it is necessary to expose the pulp if possible, and the results will be much more gratifying if the pulp is made to bleed, if ever so slightly. In favorable cases from one to two minutes pressure will thoroughly anaesthetize a pulp. In case the tooth be too sensitive to make a direct exposure of the pulp it may be necessary to make two or three applications. After each one a little progress may be made towards exposure. The anaesthesia produced, I bur out the pulp chamber, and syringe with some antiseptic solution. Then with rubber dam or napkins, I keep the cavity protected, and with nerve broaches, and canal drills, I remove the pulp from the roots. I then wash out the canals with formaldehyde and trikresol equal parts. When the canals are thoroughly clean, they may be dried and are ready for filling.

If, as is sometimes the case, it is found that there is still some sensitiveness at the approach to the end of the nerve canal, it can usually be overcome by pumping the mixture up the canal and teasing gently with a smooth broach.

If the pulp be ossified it is seldom that sufficient anaesthesia can be produced to admit of its immediate removal, as the ossification prevents the absorption of the anaesthetic.

The advantage of immediate extirpation over devitalizing by arsenical applications are manifold. Some hours pain usually follows the application of arsenic to an exposed pulp. If the application be not perfectly sealed into the cavity, severe cauterization of the gum tissue and even necrosis of the septum may result. Even in the most favorable cases some days must elapse before the pulp is sufficiently devitalized to be removed, By that time the patient may be out of reach, and an alveolar abscess form before another visit can be made to the dentist. Then, if an attempt be made to extirpate a pulp in a tooth having two or more roots and it is found that the nerve is not devitalized throughout its whole length, or in all the roots it is frequently troublesome to continue the treatment.

It is very gratifying to the writer as it no doubt is to many others who practice this system, when requested to extract aching teeth, to be able to give almost immediate relief and save valuable teeth by pressure anaesthesia and immediate pulp extirpation.

THE DENTAL SOCIETY OF WESTERN CANADA.

The Annual Convention of the Dental Society of Western Canada will be held in Calgary, July 7, 8 and 9, 1913.

Papers will be given by Dr. A. W. Thornton, of McGill University, on "Crown and Bridge Work, Wise and Otherwise," and by Dr. Garrett Newkirk, of Pasadena, Cal., on "Pyorrhea" and "Personal Hygiene." Other papers and clinics by representative men of Western Canada.

Dominion Dental Journal

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CLOSER RELATION WITH UNIVERSITY OF TORONTO

The President of the Ontario Dental Society in his address published in the May issue says in effect: It might have been a great advantage to dentistry to have made a bargain with the University some years ago, but at present dentistry has a better chance to fight it out alone. Dr. J. A. Bothwell in discussing the same subject says: "If those in authority at the University have not a full conception of the needs of dentistry at present it would be better to remain as we are until such time as it will come." Dr. J. B. Willmott in closing the discussion called attention to an error into which many of the profession have fallen in reference to the control of the dental profession if the University opened a department of dentistry. We print in full his remarks so that there may be no doubt on the matter.

DR. J. B. WILLMOTT: Mr. President, unfortunately I am losing to some extent my hearing so that I did not hear Dr. Hoggan distinctly, and on that account I do not propose to discuss the paper at all, with the exception of one item. I gathered from the remarks of Dr. Hoggan and Dr. Bothwell that the proposition of closer relationship with the University is entirely misunderstood. So far as the members of the Board at least are concerned and so far as the members of the staff of the school are concerned, it does not involve any control of the profession by the University; it is a matter of teaching pure and simple, nothing more and nothing less.— — It is simply a question, of whether, with the organization of the University and with its prestige and with its method of government, dentistry may be taught more efficiently than it can be under present conditions, but so far as any control over the profession is concerned, that is absolutely out of the question.

It has no more control to-day over the profession of law than we have, it has no more control over the profession of medicine than we have, it is simply teaching medicine. The Council of the College of Physicians and Surgeons have control of the profession of medicine; the Benchers of the Law Society have control of the profession of law, and whatever may be the outcome of any negotiations with the University, the Board of Directors of the Royal College of Dental Surgeons will still absolutely control the profession. (Applause).

Whether dentistry shall continue to be taught in Ontario by a number of men hired at so much an hour by a Board of Directors elected by the dentists or whether it shall be taught by a staff of teachers engaged by the governors of the University, is a problem worthy of the best thought of the best minds in educational circles in Ontario. The President can hardly be correct when he says that if the University had taught dentistry in the past it would have been an advantage but not so now. We submit that the very opposite is true. It is for the very reason that privately owned dental schools cannot continue that so many are seeking University aid at the present time. Each year dental education is becoming more and more expensive. Students' fees will no longer run a dental school unless teachers work for nothing. Students soon learn that schools which do not pay their teachers are not up to the times, and thus they fail to attract.

The other reason for no action as mentioned by Dr. Bothwell is open to argument also. It has not been shown that the governors of the University have not a proper conception of the needs of dentistry. In fact the very opposite is more truly the fact. Dentistry has a very prominent place in the mind of the president of the University.

In theory the present method of teaching dentistry should be very satisfactory to the dentist. He dictates who may enter dentistry, how long he must study, where he shall study, what he shall study and when, where, and how he may practise. To use the oft repeated illustration, "a stream cannot rise above its source," or "The elected is as intelligent and as good as the electors and no better." Dentists are not as a class interested in dental education. They don't study their own education. It is very rare that more than ten per cent. of the dentists in Ontario vote at an election of a Board of Directors. Although this question of closer relation of dental teaching to the University has been discussed for several years one would be safe in saying that not two per cent. of the electorate know whether their representatives are in favor or opposed to negotiations, yet, these are the very persons who direct the teaching of dentistry in Ontario. The staff of the college, the real teachers, have not a word to say about it, no more than any other elector. The teachers in a department of the University have some say as to how the department shall be conducted. The governors of the University give much of their time to educational problems and the members of the senate give all of their time, in fact have given all of their lives to it, and if they are not better equipped to direct an educational institution than men whose occupation in life has not been in educational lines at all, then progress is not made by study, then directors are heaven born, not made.

THE PANAMA PACIFIC DENTAL CONGRESS

As one of the attractions of the Panama Pacific International Exposition, a Dental Congress, international in character, to be known as the Panama Pacific Dental Congress, is to be held in San Francisco, California, beginning on the last Monday in August, 1915, and continuing for ten days.

A Committee of Organization has been perfected, including representatives from the Pacific Coast States—California, Oregon, Washington, Utah, Idaho, Colorado and Arizona.

This committee is now actively engaged in perfecting the work of organization, including the establishment in every State of the United States and every foreign country, where dental organizations are known to exist of Executive Committees, which will be empowered to promote the business of the Congress by bringing it to the attention of their National, State and Local Societies, and securing memberships and contributions to the programme.

The American Society of Orthodontists and the National Dental Association, of the United States of America, have already made arrangements to meet in San Francisco in 1915 as parts of the Congress, and invitations will be extended to other dental societies to take similar action.

The Panama Pacific Dental Congress is the first organization to apply to the Exposition management for space for exhibits and to ask that a definite time be set aside for its meeting.

Manufacturers of dental goods have signified their intention to maintain during the Congress the greatest exhibition of dental supplies ever held; ample space for this purpose has already been promised by the Exposition authorities, and we are assured of their hearty co-operation in all things pertaining to the success of the Congress.

The membership fee has been fixed at ten dollars, and the finances of the Congress are being cared for by a corporation, formed within the Committee of Organization, and known as the "Pacific Dental Congress Commission of 1915."

Over $8,000.00 has alreadv been subscribed for promotion purposes by the dentists and dental societies of the Pacific Coast States, and this fund will be increased by many thousands of dollars before the Congress meets.

Ample funds for the promotion of the Congress are assured, and in due time Committees on Local Arrangements, Transportation, Exhibits, Clinics, Programme, etc., will be appointed, and everything possible will be done to ensure the success of the Congress and make it in attendance and scientific and professional interest the greatest dental congress ever held.

Never in the history of the profession has there been so auspicious a time for holding a great dental congress, and the Panama Pacific Internationl Exposition Company and the Committee of Organization of the Panama Pacific Dental Congress unite in a cordial invitation to the members of the dental profession to come to San Francisco in 1915 to attend the Congress and view the wonders of the Exposition and Pacific Coast of the United States of America.

POOLE vs. CALLUM

This case will be of interest to dentists throughout the Province, as it involves a suit for "Malpractice" and "Gross Negligence," as entered by Judge Macwatt, the father of Mrs. Poole, the plaintiff. The case shows many legal technicalities which so often might arise even if the damages claimed might be comparatively small. We might give here a brief history of the case.

Miss Macwatt, now Mrs. Poole, applied to Dr. Callum in the spring of 1911 for dental treatment, while he was practising in Sarnia, Ont. The work requiring immediate attention was to be done in the following manner, *i.e.*

1. Large restoration inlay in a lower right first molar.
2. Hygienic bridge on lower left side of mouth from cuspid to second bicuspid.
3. Inlay in disto-occlusal of upper left cuspid.

Patient had molar inlay inserted by Dr. Callum, the fee for which was $10.00. After completion of this inlay the patient inquired what the additional work would cost, and an estimate of $25.00 was given—merely an implied contract.

At this point in the case, Dr. Sangster, a recent graduate of R.C.D.S. at that time came to Dr. Callum's office as assistant and Miss Macwatt was introduced to him by Dr. Callum and Miss Macwatt agreed to have Dr. Sangster do the remaining dental work. This work with treatments, etc., was finished some time during the month of August. Nothing more was heard of the work or directly or indirectly from the patient until January, 1912, when, after account had been rendered several times for $35.00, Dr. Callum requested Judge Macwatt to pay the amount. The judge wrote the defendant, who now resides in Toronto, and it was agreed to settle the account in full for $25.00, as the work done by Dr. Sangster was claimed defective. Dr. Callum accepted cheque for $25.00 and the case was apparently closed.

About two weeks later, Dr. Callum received a communication from Judge Macwatt with the assertion that he had heard from his daughter, who was now married and living in Denver, Col., and that she said in her letter that Dr. Sangster's work had become completely loosened and useless, so it was suggested that Mrs. Poole consult Dr. Steele, who was a Canadian graduate practising in Denver. However, Judge Macwatt advised the defendant to return the $25.00 and be done with it—a very wise suggestion from a learned judge. The defendant not wishing trouble with a dictatorial personage, offered to return $15.00, which is deducting $10.00 for inlay, which was o.k. Macwatt here claimed that the inlay had come out also, which afterwards was proven incorrect at the trial. The above overtures were made to the plaintiff while the defendant was fully conversant of the fact that legally he was not forced to do this. Shortly after this Mrs. Poole returned to Sarnia and the defendant wrote to the judge with the suggestion that he would pay Mrs. Poole's expenses to Toronto, and if the work complained of was not right, he agreed to replace it gratis. The reply of the judge came in the form of a suit, as described above.

Now, about nine months had elapsed between the first and second visit of Mrs. Poole to Dr. Steele. Dr. Steele pronounced the work at time of the second visit as unfit to replace, and suggested that he put in a bridge of his own and also a crown on the upper cuspid. This was eventually done by Dr. Steele and for which Mrs. Poole paid $35.00. Therefore, the amount of damages claimed was $35.00, amount of Dr. Callum's account, ($25.00 of which was only paid). $35.00 paid to Dr. Steele, *i.e.*—$60.00.

The defendant at this time engaged legal advice and prepared his defence. A motion for prohibition was made in Toronto preventing Judge Macwatt from hearing this case in his own jurisdiction, consequently, the case was brought before Judge Morson in Toronto. This was consented to by the plaintiff after some deliberation.

The evidence of Mrs. Poole and Dr. Steele was taken on commission in Denver and admitted to court. For the defendant appeared the following gentlemen: Dr. A. E. Webster, Dr. J. W. Coram, and Dr. J. A. Cereswell, as expert evidence.

The case was called, and the following interesting situations were brought forward that should interest the Dental profession:

1st. Should Dr. Steele legally act and give expert evidence when he is himself interested in the case, having performed the work over again?

2nd. Could Dr. Steele pass judgment, after nine months had elapsed, on the condition of the mouth when work was first done?

3rd. Did Dr. Steele act in a professional manner towards defendant?

4th. Is the employer responsible for malpractice on the part of assistant when assistant is a licensed graduate?

5th. What is malpractice?

6th. What is gross negligence?

7th. If reasonable care and skill are shown, provided dentist does not claim to be a specialist, is dentist liable for damages?

8th. If dental work is done according to advanced and scientific rules, is the dentist responsible for the result or permanence of the work?

9th. Is it possible to guarantee dental work?

10th. Should Mrs. Poole not have gone to Dr. Sangster or Dr. Callum when the opportunity presented itself so work could be rectified?

11th. What is contributory negligence?

12th. Would not Mrs. Poole's refusal to return to Dr. Sangster or Dr. Callum be classified as contributory negligence?

13th. Do not these mishaps come to the most experienced and proficient dentists where faulty cement or traumatic action might come into play?

It was proven, after listening to evidence of expert witnesses that the defendant was not liable. The following is the finding of Judge Morson:

IN THE FIRST DIVISION COURT OF THE COUNTY OF LAMBTON.

BETWEEN:
JEAN ELSA POOLE,
and Plaintiff.
DONALD R. CALLUM,
Defendant.

I am unable to find any malpractice on the evidence or any guarantee, even if the language alleged to have been used by the defendant was used, it was at best only an expression of opinion, which has not been shewn to be untrue to the knowledge of the defendant. The whole cause of the trouble appears to have been the cement not holding, through no fault of the defendant. The experts say this frequently happens no matter how careful the dentist may be.

The whole thing is very unfortunate for the plaintiff, but on the evidence I cannot say the defendant is liable.

Judgment therefore for the defendant without costs.

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Original Communications

THE TECHNIQUE OF HAND CARVED PORCELAIN CROWNS

Charles K. Buell, D.D.S., Buffalo, N. Y.

Read before Toronto Dental Society, February 24th, 1913.

It is with considerable temerity that I present to you a crown technic with which you may be more or less familiar, and, if it were not for the possible difference in individual methods of porcelain crown construction, and the advantages to be mutually gained by their discussion, I should hardly have been persuaded to bring the subject of hand carved crowns to your attention.

In order that we may have a clear conception of the progressive steps in the production of the present hand carved porcelain crown, and note the gradual elimination of defects in the earlier porcelain crowns, a brief review of the history and development of some of these early crowns may answer our purpose.

In reviewing the early history of the porcelain crown, therefore, we find the first published record of the use of porcelain in the year 1816, Fig. 1. At that time it was called mineral paste, and the pin was baked in the crown which had an oval form as shown.

The description of this crown, as well as that of the others which have only an historical value at the present time, I am quoting from Dr. Goslee's book.

From that time for several years not much progress was made, but about 1840 the English tube teeth were given to the profession, Fig. 2. These were mounted upon the roots with hickory pivots.

The Foster, Fig. 3, Mack, Fig. 4, and Gates-Bonwell, Fig. 5, crowns soon followed, their attachment being made by a screw attached to the root, and the crown anchored to the post with amalgam.

Then came the Howland-Perry crown with the hole for the reception of the post, not passing entirely through the porcelain, as in the previous crowns. The Logan crown soon followed, and then various forms of attached and detached post crowns, as the Davis, Justi, Whitside, etc. The difficulty in procuring the desired shape and perfect adaptation to the root, being so difficult to obtain, lead the profession to attempt the construction of crowns in the laboratory.

The first effort in the laboratory was to obtain better adaptation to the root by the aid of a plate of platinum soldered to a post of iridio-platinum. A facing was selected and the pins soldered to the post with platinum solder, Fig. 6. The lingual contour was then restored by fused porcelain. These crowns having a tendency to fracture, the cap and apron foundation was adopted, Fig. 7. The difficulty co-incident to the application of a framework of this kind to a badly broken down root, and the subsequent irritation to the tissues, caused by the band, led to a desire for a crown that could be made to fit the root, whatever its condition, cause no irritation to the tissues, and at the same time be strong enough to withstand the strain placed upon it during mastication.

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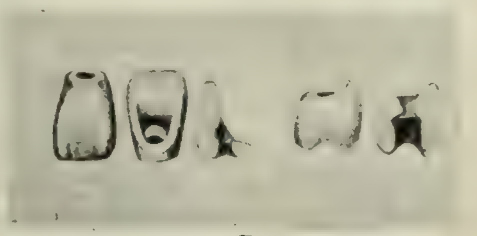
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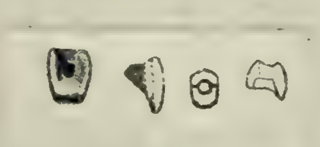
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In the development of this crown the following known facts concerning porcelain were constantly kept in mind:

Porcelain to have its greatest density must be evenly and thoroughly condensed.

All possible moisture must be brought to the surface and absorbed.

A mass of porcelain during the process of baking shrinks toward the centre of the mass.

If there is a point for fixation within the mass the shrinkage goes toward that point.

If there are two points of fixation within the mass the shrinkage goes toward one, and pulls away from the other.

If a point of fixation can be placed in the centre of mass the strongest possible crown is the result.

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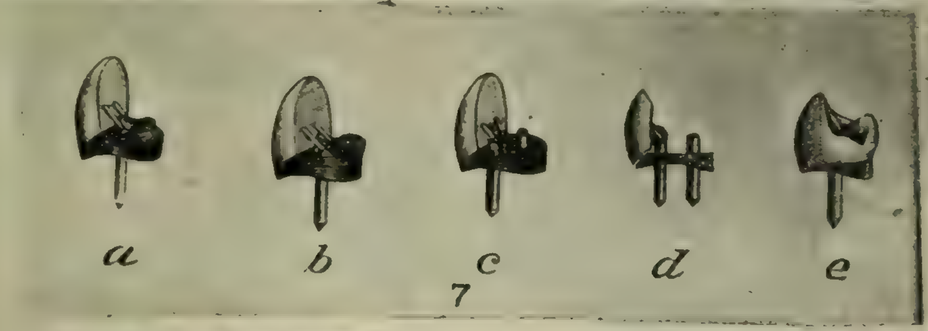

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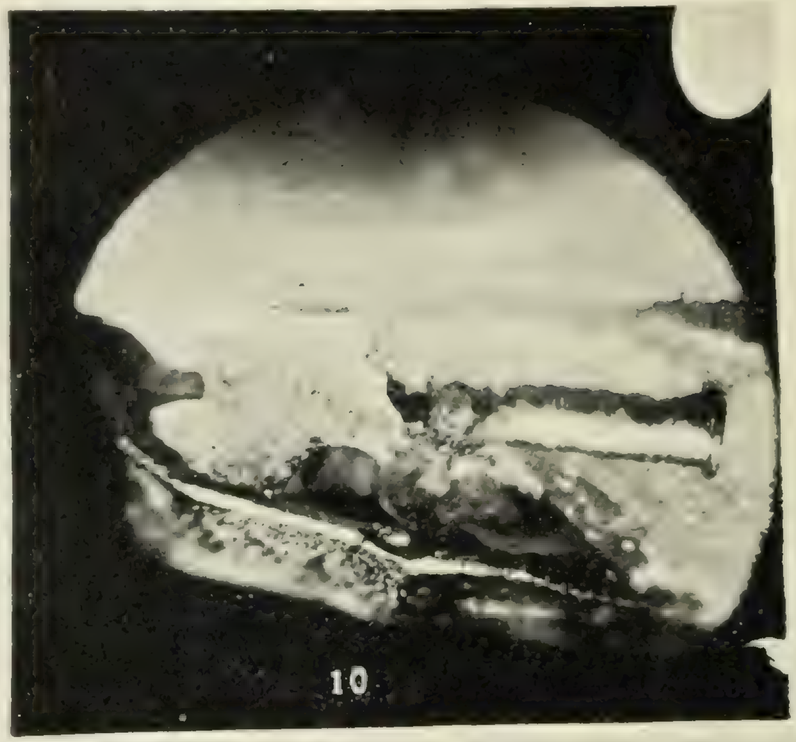
Two bakings are all that should be given a crown to obtain its greatest strength.

Burnishing the surface of a carved porcelain crown before baking gives a smoother surface to the finished crown.

The following slides show very plainly the presence of these qualities, as well as several undesirable ones.

Fig. 8. Is a cuspid crown in which a facing was used, the pins being soldered to the post and the lingual portion built up with S. S. W. high fusing porcelain. (Note the bubbles around the pins and post.)

Fig. 9. Is a crown with a band of platinum surrounding the lingual and approximal sides above the plate, which was supposed to prevent the porcelain from being forced off the plate when stress was made to bear upon it. (Note the bubbles and space inside the band).



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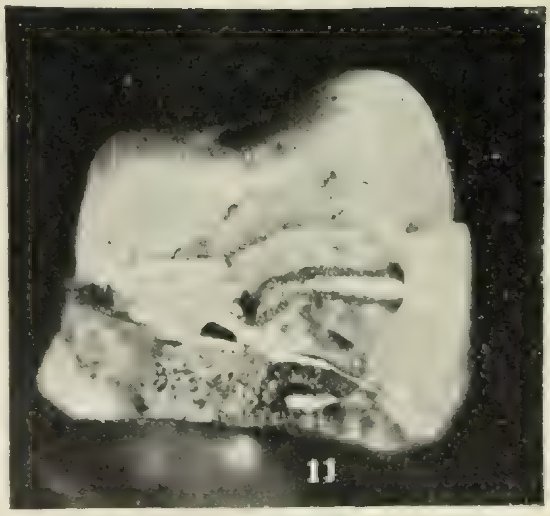

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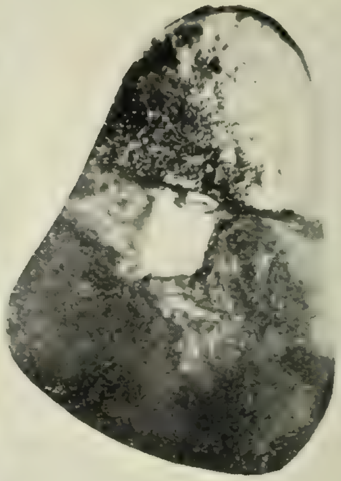

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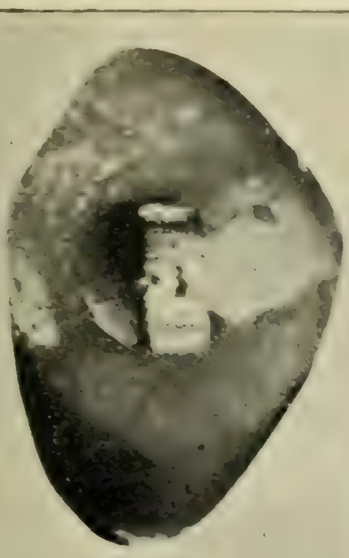
Fig. 10. The same more highly magnified.

Fig. 11. Is an approximal view of the same.

Fig. 12. Is a hand carved bicuspid. (Note density of porcelain, adaptation to post and absence of bubbles).

Fig. 13. Is a hand carved bicuspid with an oblong post. (Note same qualities as in Fig. 12).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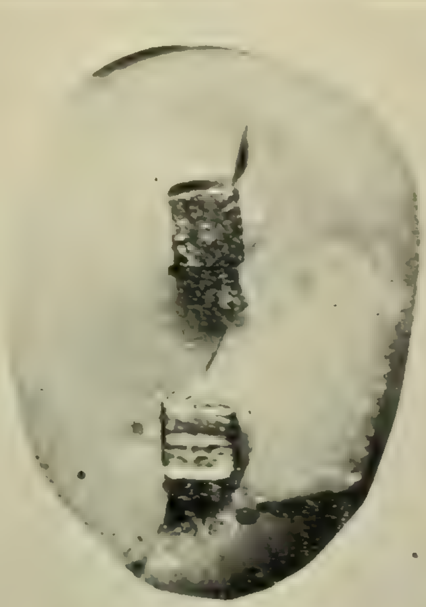
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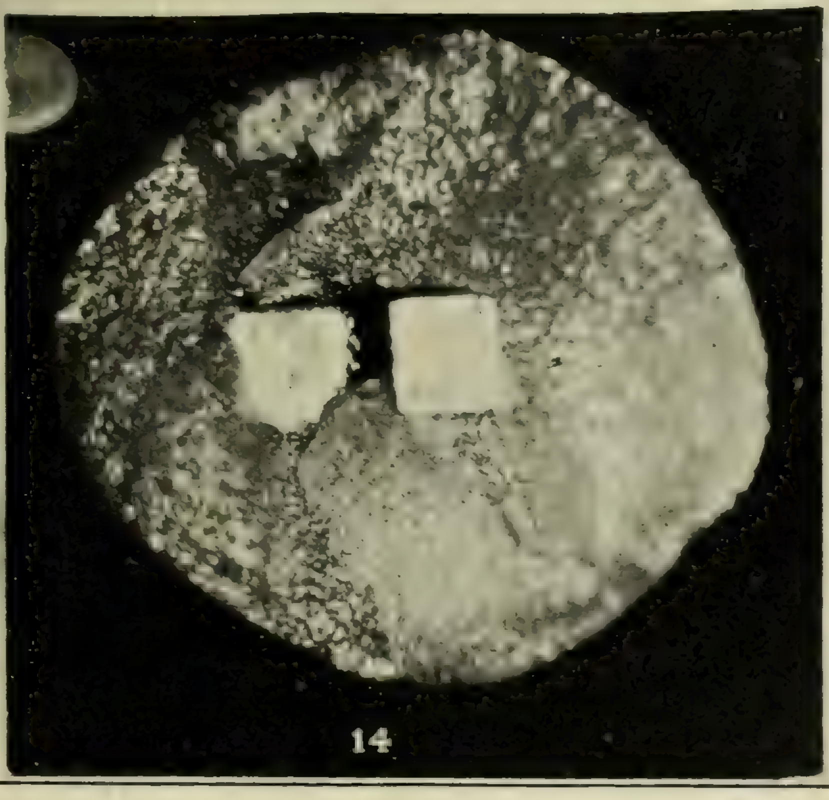
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Fig. 14. Is same as Fig. 13, more highly magnified.

Fig. 15. Is a molar with two posts, showing the tendency of the porcelain to adhere to one and pull away from the other.

Fig. 16. Is the surface of an S. S. W. tooth as we purchase them at the supply houses.

Fig. 17. Is a cross section of the same tooth.

Fig. 18. Is the surface of a hand carved crown made from S. S. W. high fusing porcelain.

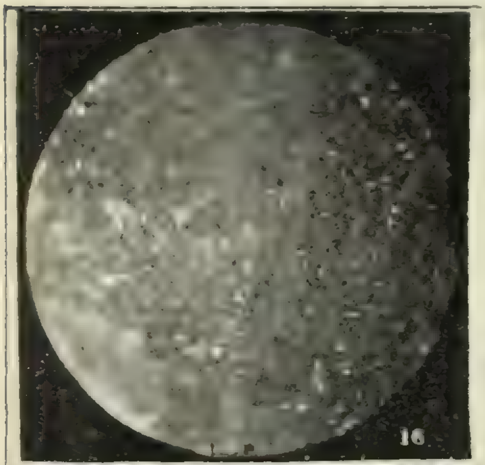
Fig. 19. Is a cross section of the same crown.

Fig. 20. Is the surface of a consolidated tooth as we purchase it.

Fig. 21. Is a cross section of the same.

Fig. 22. Is the surface of a hand carved crown made from consolidated high fusing porcelain.

Fig. 23. Is a cross section of the same.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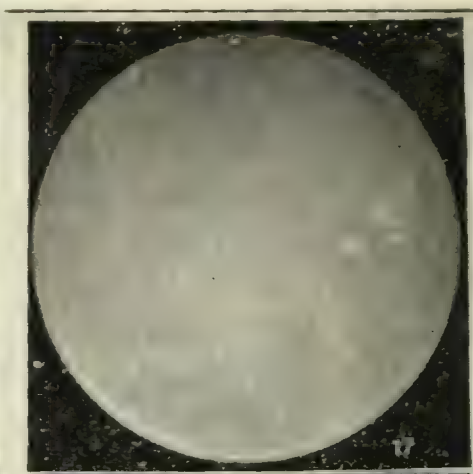
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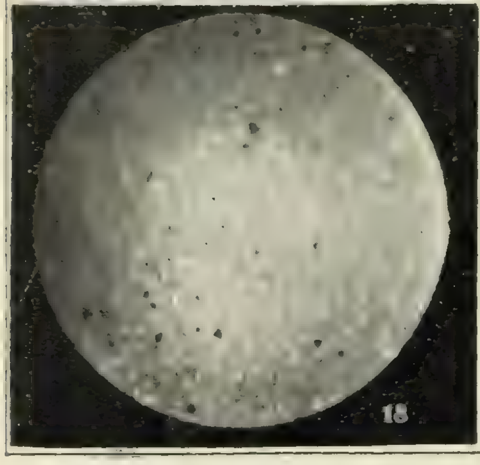
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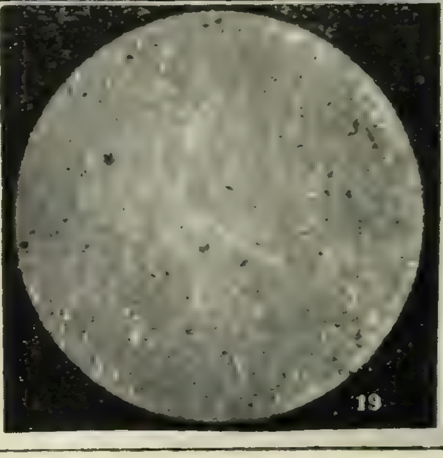
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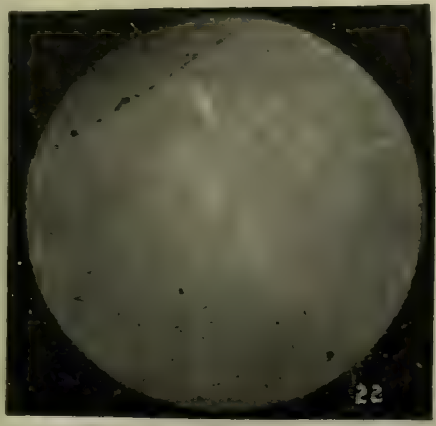
Fig. 24. Is the surface of a piece of porcelain baked from S. S. W. high fusing porcelain. One side of the scratch across its surface the porcelain was burnished before baking. (Note its smoothness). The other side was not burnished. (Note the uneven surface and minute bubbles upon the same).

It gives me great pleasure to show in detail the construction of a crown that may be adapted to any root that it is possible to place a crown upon. This crown embodies, as I believe, all the essentials mentioned above. The detail is simple, easily mastered, and the possibilities limited only by the skill of the operator.

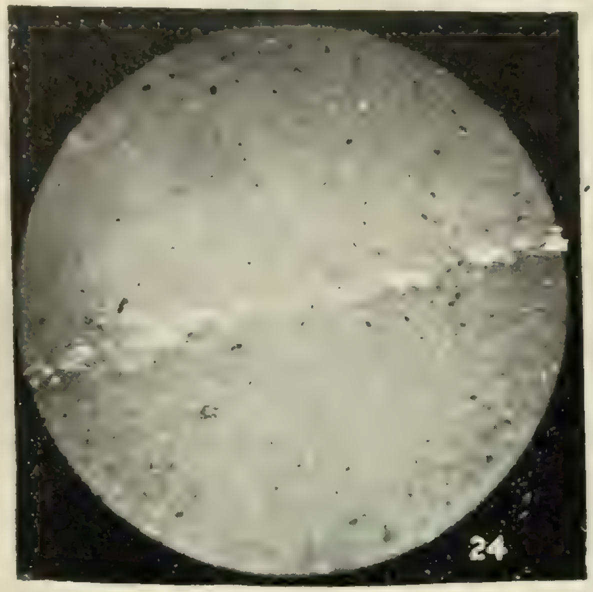
There are two methods of attachment; first, by an iridio-platinum post entering the root; second, the crown is made in the form of a porcelain shell covering a stump of the tooth which form may be applied to either vital or devitalized teeth.

Root preparation, first method: The tooth is excised and the surface end of the root ground so as to form two inclined planes, the periphery of which shall be under the free margin of the gum, Fig. 25-A, Labial view and B, approximal view. The root may be so decayed that this form can be only partially obtained, Fig. 25-C and D. Whatever the form some provision must be made to lessen the tendency of the crown to revolve upon the root. The root canal is opened for the reception of a square iridio-platinum post from 14 to 16 guage, which is fitted to the root so it can be easily removed, then marked where it protrudes from the root, Fig. 26-A. A piece of soft platinum plate from two to three thousandths of an inch in thickness, according to the size of the root to be crowned, is laid upon a lead bar and the post driven through it. This method punctures the plate in such a manner that it makes perfect contact with the post on all sides. The post is forced through the plate until



the mark, Fig. 26-B, where it protruded from the root, is reached, then it is soldered with platinum solder.

The plate and post are placed upon the root and the post driven to position. The periphery of the root is then outlined by the use of a small pine stick and mallet, Fig. 26-C, after which the plate is trimmed to within 1-16 of an inch of this line. Placed upon the root once more this excess is carefully burnished over the periphery, Fig. 26-D, with S. S. W. burnishers, Nos. 10 and 11, Fig. 27. Should the root be badly broken down it is best to pack with temporary stopping for a few days before making the cap. The periphery of the root must be well outlined through the plate and the angle formed at this point should be sharp and well defined. A ball burnisher No. 25, Fig. 27, ground so that its surface is flat, is a splendid burnisher for the surface of the plate. For a final adaptation of the cap a pad of vulcanite is placed between the teeth over the cap and the patient requested to close upon it thus swedging the cap to perfect adaptation.



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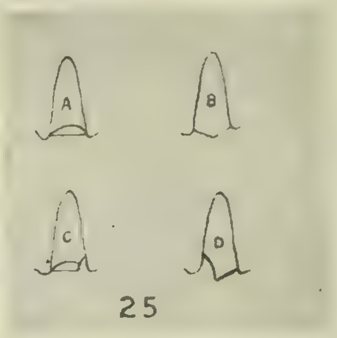

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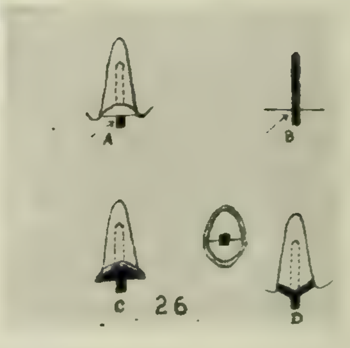

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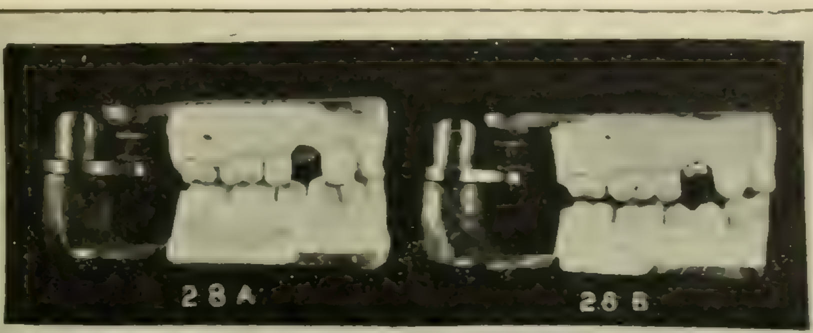
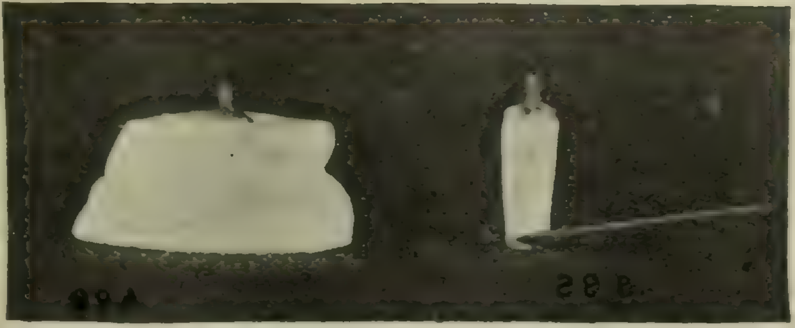
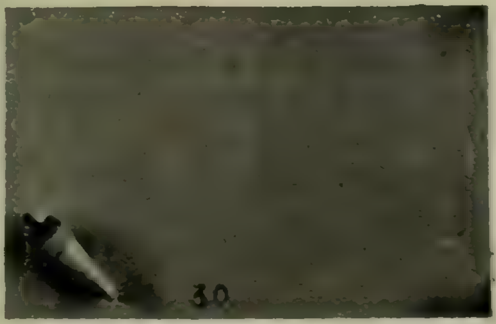
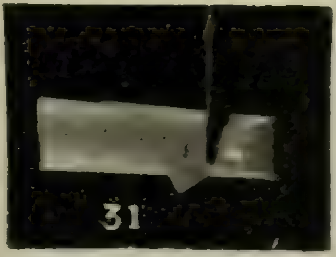
A modeling compound impression and bite is now taken. If the cap and post is not removed with the compound it should be carefully removed and placed in its proper position in the impression. The part of the post that is exposed, and the inner surface of the cap, are coated with a thin film of wax, then the outer surface of the band coated with a thick covering of wax. A plaster model and antagonizing model are poured, attaching them to a crown articulator that has a joint permitting a lateral movement.

While the plaster is setting the shade is selected. I find the best method in my experience is to select with a shade guide, a tooth that is the proper shade. For convenience let us assume that No. 38 S. S. W. is the shade desired.





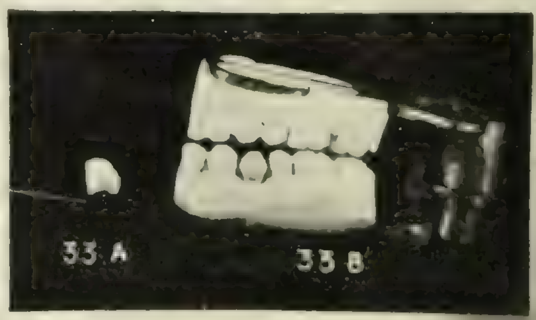


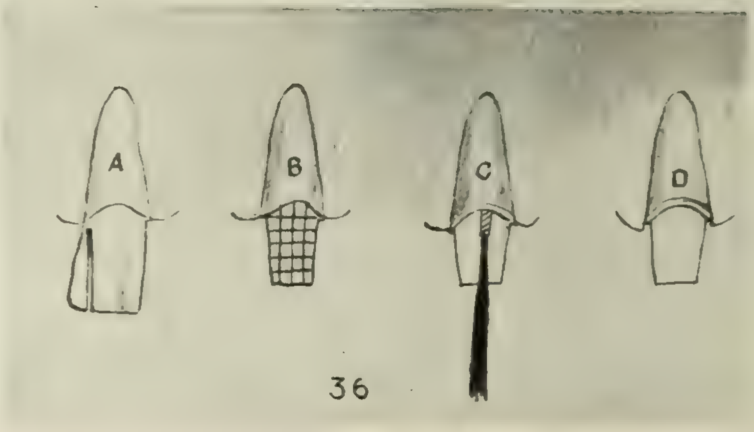


By covering the sample tooth with the finger, so that the cervical portion only is exposed, we find that with S. S. W. high fusing porcelain, shade I, matches this portion.

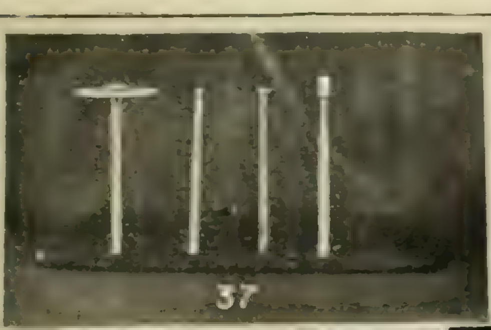
By covering the cervical portion and exposing the incisive half we find that shade E matches this portion.

The plaster having set and the compound having been removed, Fig. 28-A, the adjacent teeth are carved away so that the space is widened one-sixth, to allow for the shrinkage of the porcelain and the articulator set so that it is held open 1-6th of the length of the crown to be made, Fig. 28-B. The post and cap are now warmed over the burner and removed from the model. The wax is completely burned off and, when cold, new wax is placed upon the root side of the post, and upon the inside of the band and plate. A button of plaster about one inch in diameter in all directions is placed upon a glass slab and the post and cap placed, wax side down, into it, Fig. 29-A. When set the plaster is carved into the shape of a cone, the length of the cone determining the diameter of the tooth to be carved, Fig. 29-B. The post and cap is heated and removed from the cone, all the wax is burned off, then it is chilled in





water and replaced upon the cone. A piece of glazed note paper, about two by three inches, Fig. 30, is wound around the cone of plaster and folded over at the botton, forming a cornucopis the length of which, above the cap, determines the length of the tooth to be carved, Fig. 31, and should be inexcess of the required length, so that there may be plenty of porcelain to work upon. The porcelain that is to form the cervical portion of the crown is mixed to a thick creamy consistence and the cornucopia is filled with it, then jarred down by drawing the serrated handle to the carver across the paper over the plaster cone. The moisture is driven to the top and absorbed with a napkin. This is repeated until no moisture comes to the surface. The paper is then removed, Fig. 32-A. The porcelain is carved away exposing the band, and then a thin instrument is forced under the band to the post, and the cap, post, and porcelain carefully removed from the cone of plaster, Fig. 32-B. Carve the porcelain so it will fit into the space on the model. Carve away on the labial side to the height desired for the cervical color, leaving the lingual side intact in incisors and cuspids, Fig. 33-A. For molars and bicuspids carve away both buccal and lingual sides, Fig. 33-B. In each case carve away at an angle so the grey porcelain will overlap, causing a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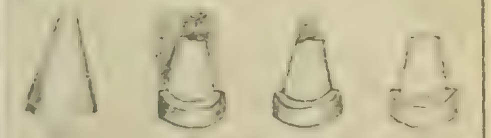
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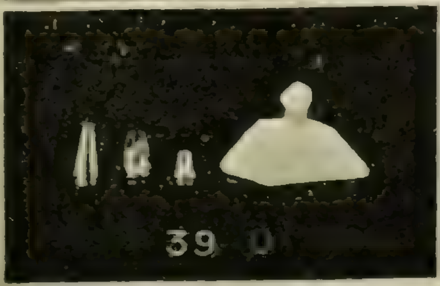
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blending of the shades. Remove from the model and place upon the plaster cone again. Wrap the paper around the same as before. Add the other shade of porcelain, a little thinner than the previous mix. Add quickly in generous portions so that it may run down between the paper and the dry porcelain before it absorbs the moisture from the new porcelain. Jar slightly at first and absorb the moisture as soon as it shows, repeating until it is all absorbed. Remove from plaster cone as before and trim so that it will again go into place upon the model. Carve labial side to desired contour, then lingual side the same, using the adjacent teeth and the antagonizing model as a guide. It is always best to make the anterior teeth a line or two too long as they can be easily ground off. The tooth having been blocked out, remove it from the model and complete the carving, holding the post in a broach holder. The surface is smoothed with the ball of the finger, thus removing all traces of the carver. The chips and powder are brushed away with a large camel's hair brush. The surface is now all gone over with an S. S. W. porcelain burnisher to iron down the surface and make it smoother. The biscuit bake should be made in not less than seven minutes. Try the crown upon the root and re-adapt the platinum to the surface end of the root, Fig. 34. Fill in the space thus formed with new porcelain, and should there be any discrepancy upon the sides or incisal end it may be remedied by the addition of more porcelain at this time. Bake to a glaze taking at least ten minutes for the same. Try in the mouth, and if satisfactory, cut the platinum plate away from the post with a No. 1 round burr, wet the crown and carefully peel the platinum away. Should there be any feather edges around the periphery of the base of the crown these may be removed with an Arkansas stone. The crown is then ready for cementation, Fig. 35.

Root preparation, second method: Slices are cut away from the approximal sides of the tooth with a thin wet carborundum stone, Fig. 36-A. The labial surface is grooved, Fig. 36-B, then these squares ground down with a broader stone, Fig. 36C. The lingual surface is treated in the same manner.

A cross cut cylinder burr, ground smooth on the end, is used to form a shoulder at the cervix upon the labial and lingual sides. The approximal shoulder is formed with a thin carborundum stone with a flat cutting edge, Fig. 36-D.

A wheel plug finishing burr is used to finish the shoulder on the labial and lingual sides and for a final polish Arkansas stones are used, Fig. 37.

The matrix for centrals, cuspids, bicuspids, and molars should be of 1-1000 of an inch *soft* platinum plate. Laterals and lower centrals and laterals should be 1-2000 of an inch *soft* platinum. A cone of platinum is formed slightly larger than the dentimeter measurement above the shoulder and soldered with platinum solder, Fig. 38-A. Trim this cone to conform to the gum line and cut away until it fits the tooth snugly at a lap joint. Trim the incisive end and fold it over, Fig. 38-C. Burnish the shoulder. Work the labial and lingual sides down to adaptation with a pine stick. With the thumb and finger squeeze the excess to the sides and trim a portion of it away, Fig. 38-B. Bend this excess over, forming carefully with the same burnishers used for the other crown, making a well defined outline at the shoulder. Swedge to final adaptation with vulcanite, Fig. 38-D. From this point on the procedure is the same as in the preceding crown. The completed crown, Fig. 39. This style of crown is well adapted to the needs of molars and bicuspids. Molars may have two posts set in their root canals, at any angle, and then a core of amalgam built up around them, Fig. 40-A. The matrix made over this core, the shoulder being formed by the tooth that has been ground down flat below the gum line. The pulp chamber may be opened and a post placed in one root with a tenon of porcelain entering the pulp chamber, Fig. 40-B. Fig. 41.

While I do not lay claim to originality for this crown in its entirety, as it is an evolution from the crowns previously discarded by various operators, here and there throughout the technic I have suggested certain methods which, in my experience, have proven most satisfactory.

Of necessity there are many variations of this style of carved porcelain crown, and each case is more or less a law unto itself, but the main points porcelain crown construction, without which the individual characteristics in the technic given are of value in establishing a high standard for of each case cannot be satisfactorily reproduced.

MOUTH INDICATIONS OF SYPHILIS

D. KING SMITH, M.D., TORONTO, ONT.

Read before Ontario Dental Society, Toronto, May, 1913

(1) Syphilis is a chronic infectious disease caused by a specific micro-organism, the spirochaeta pallida. The primary lesion of syphilis or chancre develops at that point of the body which serves as a port of entrance for this micro-organism. The infection spreads through the whole organism, rapidly by the blood and slowly by the lymphatics.

(2) In the secondary period of syphilis, the manifestations of the disease may appear in any organ of the body. It is possible for syphilis, during the secondary period, to run an exceptionally light course, in fact it may be overlooked entirely.

(3) As a rule, in the course of the first months and years following more or less intense general manifestations of the disease, general or local expressions of syphilis alternate with latent periods, when no symptoms appear.

(4) Gradually the disease subsides, not to reappear; usually under the influence of treatment; seldom without it. In a certain number of cases it may reappear, after a more or less latent period, in the form of tertiary syphilis.

(5) In contrast to the secondary period, tertiary syphilis is to be looked upon more as a local rather than a constitutional disease.

(6) A peculiar characteristic of syphilis is the numerous phases and various manifestations of the disease during the sometime long period of the duration. Even if syphilis spares no organ and its manifestations occur in all parts of the body, it has, however, a special predilection for certain parts. The most frequent point of infection is about the genitals, then the mouth. The secondary manifestations of syphilis have a predilection for the skin and mucous membranes.

(7) In order to understand the localization of syphilitic manifestations it is important to know that secondary and tertiary syphilis establish themselves with predilection and intensity on such spots as have been determined by irritation and injury.

(8) For this reason secondary syphilis has an especial predilection for the mouth, as the mucous membrane of the mouth and tongue is continually irritated by eating, drinking, biting, smoking, unequal surface of teeth, tartar.

(9) Foreign bodies and many different kinds of micro-organisms may lodge upon the tonsils, thus leading to inflammation. The lips are often chapped, and there mav be slight injuries to the epithelium. As no other mucous membrane of the body is subjected to as much trauma as that of the mouth, the manifestations of syphilis occur in and about this locality more frequently than upon any other part of the body.

(10) Tertiary syphilitic lesions of the mouth are comparatively frequent. The mucous membrane, however, is not so often involved as the underlying tissue, viz., the muscle and bone. Destruction of the soft palate, perforation of the hard palate, and necrosis of the roof of the mouth are not infrequent sequelæ of tertiary syphilis.

(11) Hereditary syphilis makes itself evident in the mouth, not only in the early but also in the late forms of syphilis. Deformities of the teeth of hereditary syphilis are of quite frequent occurrence, and of great importance.

(12) We are, therefore, able to observe in the mouth all stages of syphilis and to a certain extent study in the syphilitic oral manifestations the entire course of the disease.

(13) As the clinical picture of syphilis varies greatly, and as syphilis of the mouth may resemble many other diseases occurring in that locality, a diagnosis cannot be made by considering the clinical manifestations alone, and before an absolute diagnosis can be made we must sometimes even resort to microscopical or serological examinations.

(14) The fairly frequent occurrence of a primary lesion in or about the mouth is not remarkable when we consider how easily an injury, such as a scratch or break of skin or mucous membrane, can happen to these structures. In order to contract syphilis it is necessary that the port of entrance for the spirochaeta pallida must come in contact with either the exudate of a chancre or mucous patch or some material containing the spirochaeta pallida.

(15) On the lips the chancre appears at first as a flat, non-shining erosion, which is elevated very little or not at all above the surface of the surrounding mucous membrane. It gives a distinctly hard, cartilaginous feel to the touch. This type of chancre is almost always painless, and this, accompanied by the fact that it occasions scarcely any inconvenience and is often not noticed by the syphilitic, makes him a menace and favors the spreading of the disease.

(16) Always be suspicious of a cold sore that will not heal. On the tongue, as on the lip, the initial lesion may appear as an erosion, a papule or an ulcer.

(17) About four to six weeks after the occurrence of the primary lesion secondary manifestations usually occur. The manifestations upon the mucous membranes are commonly called mucous patches. The mucous syphilides are moist and usually contain the spirochaetes in great numbers and are, therefore, specially infectious.

(18) With the first general or systemic manifestation of the disease lesions of the mucous membrane of the mouth are rarely absent, and in the late course of the secondary period they are extremely frequent.

(19) It often happens that after the eruption has disappeared, with the exception of the mouth lesions, there are no syphilitic manifestations.

These mouth lesions give no, or at times extremely little, evidence of their presence, and as they are particularly infectious the importance of recognizing them is evident.

(20) Corresponding to the time of the appearance of the roseola, simple erythematous spots appear upon the mucous membrane of the mouth. These spots are not diagnostic of syphilis unless accompanied by the manifestations.

(21) By far the most frequently occurring type of syphilis of the mouth is the erosive syphilide, or mucous patch, which is a round or oval superficial erosion. Its surface is faintly shiny, very little roughened. There is a sharp line of demarcation between the lesion and the healthy mucous membrane, and inflammatory reaction is usually absent.

(22) The mucous patch may become raised and hypertrophied. The color of its surface is a more pronounced gray or dirty yellow or sometimes distinctly white.

(23) In severe, neglected or untreated cases the mucous patches of the mouth, as of the skin, may often undergo ulceration—ulcerated mucous patches.

(24) All stages are met with from that of a small, superficial, insignificant ulcer to a severe ulcerating process, with extensive destruction of the submucous tissue.

(25) Neglected oral hygiene, smoking, chewing, surface inequalities of the teeth, etc., play a prominent part in causing these ulcerated patches.

(26) As a rule, the ulcers appearing during the secondary period of syphilis are surrounded by an acutely inflamed area.

(27) The ulcerated mucous patches can give rise to considerable pain, particularly if they are situated in such places as are exposed to mechanical irritation.

(28) The so-called syphilitic angina, or sore throat, is very frequently found in the secondary period of this disease. It affects chiefly the isthmus of the fauces. The tonsils are not always involved. The mucous patches soon run together, and the process almost always tends to extend and involve the pillars of the fauces.

(29) In the mildest form the mucous membrane is only a little swollen, and has an appearance as if covered with milk.

(30) In mucous patches which have undergone hypertrophy and considerable infiltration, the color becomes markedly yellow or distinctly white.

(31) The multiplicity of syphilitic manifestations upon the mucous membrane of the mouth during the secondary period of the disease make their diagnosis particularly difficult. A very important clinical evidence in many cases of secondary syphilis is the falling out of the hair. It gives to the scalp a peculiar moth-eaten appearance. Also in quite a number of cases the voice is husky, so, taking the loss of hair, husky voice and mucous

lesions in the mouth, it is very strong evidence that the patient is suffering from syphilis.

(32) Circinate or round lesions surrounding the mouth frequently develop during the secondary stage of syphilis, so always be suspicious when you notice these lesions that you have a syphilitic to treat.

(33) The late or tertiary manifestations of syphilis in the mouth appear in many forms.

(34) The tertiary process often begins in the submucous tissue, leading to the formation of gummata, which undergo a more or less rapid development, and if not treated tend to break down, forming extensive ulcers. The gumma, as a rule, is painless. Often the tertiary lesions begin in the underlying bone or periosteum leading to the necrosis of the bone. As this process of destruction is not painful, it often happens that various sized pieces of necrotic bone are discharged before the patient is aware that anything is the matter.

(35) In hereditary syphilis lesions practically as in the acquired form may appear. Soon after birth cutaneous lesions and lesions of the mucous membranes are frequently observed. The late lesions of hereditary syphilis consist of destruction of soft palate and cartilages of nose and gummatous infiltrations of tongue, lips, hard palate, etc.

(36) The stigmata upon the teeth may be classed as one of the results of the damage to the entire organism, and the various deformities are just some of the manifestations of syphilis.

(37) It is impossible in so short a paper to take up minutely the mouth indications of syphilis. It is well to remember that no one lesion is characteristic and before a certain diagnosis can be made in many cases a most careful history must be taken and various tests made. In a large per cent. of cases certain lesions are found which will at once suggest the disease and even with a little experience a diagnosis can be made with a degree of certainty. I would ask you always to be very suspicious of a patient presenting small sores (as the patient calls them) on the inner surfaces of lips, along the border of tongue and in neighborhood of tonsils. A kidney-shaped ulcer of tonsil is most suggestive.

(38) If the voice is husky and hair is falling out, and, in men, a moth-eaten appearance of hair is present, it is almost certain that the patient has syphilis.

(39) In conclusion, I would like to say that I believe it is the duty of the physician to instruct his patient to inform his dentist that he is suffering from the disease, so that no stone may be left unturned to prevent the spread of the disease.

In connection with the reading of the paper, Dr. Smith made the following remarks:

(Re paragraph 1.) Now ladies and gentlemen, one of the most important features is that we have to consider syphilis as a constitutional disease, just like we would typhoid fever, otherwise we will get into serious trouble to account for the many lesions which occur. It is a general disease like any other of the constitutional diseases. It has its local introduction and then we have the general manifestations of the disease.

(Re par. 2.) A large number of the cases are rather severe. The patient really is sick; they have headaches and tell you they are tired and they feel like they would at the onset of typhoid or any other such disease. They may have some lesion of the mouth and never consult a doctor or anyone else and they are the ones that cause the disease to widely spread.

(Re par. 4.) Even in the untreated case the disease will subside to a certain extent and then again you will see lesions break out. A person may be free from any syphilitic manifestations for a period of ten or twenty years and then lesions will appear that we call tertiary or latent syphilis.

(Re par. 6.) The second most frequent point of infection is about the mouth and no doubt in the majority of cases it is due to these mucous patches that I will mention later on and then again to kissing. It is noticed in foreign countries where they have carnivals and celebrations taking place, at that time syphilitic lesions of the mouth and especially primary chancres appear in great numbers, when at other times of the year you won't see them at all, or rarely.

(Re par. 8.) That it is a clinical fact that where you have an irritation of any kind the lesions are most apt to occur and if there is any breach of the body it favors infection. Parts that are the seat of irritation are more liable to have lesions, hence are frequently found in the mouth on account of smoking, etc.

(Re par. 9.) So much so that we examine the mouth in all suspected cases.

(Re pars. 10 to 13.) That is very important, ladies and gentlemen, as I mentioned that it is often almost impossible to make a diagnosis of the lesion alone. Syphilis is called the great imitator. It imitates nearly every known disease and in a great many cases we have to resort to what we call microscopical and serological examinations, which are carried out in many cases.

(Re par. 14.) That is one of the important things. As some of the gentlemen who were looking at these plates remarked, it looks like a cold sore or some other lesion. Quite true, but if you were by chance to feel it, and I realize it would be very awkward sometimes to do so, but if you were to feel the margin of this lesion it has a hard cartilaginous feel to the touch, hence the name hard chancre.

(Re par. 15.) That is a very important thing. A great many of the lesions are painless and you would have a corresponding sore; even a cold sore would be far sorer than the syphilitic lesion, therefore when any lesion is painless it should suggest to you probably you are dealing with a syphilitic condition. I might say here to explain that, it may vary like a cold sore or, on the other hand, like a cracked lip, but syphilis is a constitutional disease and if by chance you feel the glands adjacent to the lesion you would have the glands enlarged, as it spreads by the lymphatic. Therefore the lesions along with the swelling or hardening of the glands would at once suggest the disease. In this particular case the person would look pale and pasty, and it might suggest to you you were dealing with a patient that had this disease. In my own experience, somewhat limited, I have continually seen cases of cold sores that will not heal and probably every one turns out to be the initial lesion of syphilis. It won't heal without treatment and if left alone you have great destruction.

(Re par. 16.) It simply may be a little fissure on the lip or may be a large papule or on the other hand a large ulcer. The same here, you are at a disadvantage, although if you were to feel, by careful examination you would feel the hard surrounding cartilaginous margin, and then on the other hand don't forget that you have enlargement of the adjacent glands. In fact all the glands of the body would be enlarged when the conditions were so manifested.

(Re par. 17.) They are the lesions, gentlemen, that cause the disease more than any other. They are simply, as I might say, little ulcers very often along the border of the tongue and just within the margin of the lip, and on turning down the lip you will find these little ulcers along the border of the tongue; and early in the disease they are practically painless. Later on they may become quite painful, but again in this condition you would probably have other lesions. I might mention the syphilitic sore throat that probably would suggest to you that you are dealing with the constitutional disease. So, the mucous patches are very important.

(Re par. 18.) In the majority of cases the disease does not come under notice until it is fairly well marked and before anyone is consulted and then it is a general constitutional disease and you have it developing in other parts of the body. At the same time you would have the erythema of the body coincident with the lesions in the mouth. So that when these little superficial ulcers just in behind the margin of the lip and along the border of the tongue are present you can always be suspicious you are dealing with the syphilitic.

(Re par. 19.) That is peculiar of all the other lesions. It is not so peculiar when you think at all that all the skin lesions will rapidly clear up, and very often the mucous membrane lesions remain. But the reason is continually drinking hot and cold things and the tongue coming in contact with sharp teeth, and smoking, and all times there is a certain amount of irritation added, and you will have the lesions of the mouth persisting where they disappear in other parts of the body.

(Re par. 20.) It is simply redness of the lip, but you would not make a diagnosis of syphilis by the redness of the lip alone unless you had it appearing on other parts of the body, but it is a lesion that does appear as an oral manifestation.

(Re par. 21.) That is to say in the ones I mentioned a minute ago it may be very superficial and then again you may get some that are deeper; there is very little inflammation around the mouth and it is just another type of the mucous patches as represented in these plates, varying in extent. I might just say here particularly on this mucous patch about the lower lip note the condition around the nose. You can't get away from the fact you are dealing with a constitutional disease, otherwise you get in trouble, if you see there are little ulcers crusted around the nose. Another thing is the fissure around the lip, and then with sores on the tongue and on the lip you are almost certain to be dealing with a syphilitic patient, because you are dealing with a constitutional disease, and it is very common around the mouth, and, as I will show later on, fissures in the neighborhood of the mouth always suggest the disease. I might say this, this plate is important because it gives a clue to this disease, loss of hair due to syphilis, the scalp has a motheaten appearance, the hair is not lost evenly but just little parts here and there present a moth-eaten appearance, and then if you find you have lesions in the mouth it at once suggests to you you have a case of syphilis to treat. So taking the diseased conditions around the nose and then the mucous patches and then this loss of hair one would almost make a diagnosis of syphilis.

(Re par. 22.) Most lesions are of the mucous type. Again, on the other hand they may become high and elevated, and yet still retain the name of mucous patches, whereas they simply form an exaggerated condition of the disease, the more severe type as represented in these plates. plates.

(Re par. 23.) You will see later on one of the first things we should do when we treat a syphilitic is to require them to get their teeth in good shape, for if they do not they will suffer through salivation, etc., and then any irregularities of the teeth, etc., play such an important part, and where ordinarily we would only have a simple ulcerative patch we might get severe results from the irregularity of the teeth. In the first stage they are not painful, but then you have an irritation prolonged by ragged teeth, etc., and they then become quite painful.

(Re par. 28.) That is very important, what is called the syphilitic sore throat. There is hardly a case of syphilis where they do not complain of the sore throat, and as I said before, it is routine examination to examine the throat when you look for the syphilitic condition. On the other hand you may see a large number of these little ulcers and in some cases, as represented by these plates, quite extensive ulcerations and destruction of the tissues takes place.

(Re par. 31.) Now that is important to you gentlemen because it is evident as here in this plate there are little round looking lesions around the mouth and nose and they are very suggestive of syphilis. So as you have such a good chance to observe that, and then by looking at the mouth you see some of these little sores that probably won't heal, you are almost assured you are dealing with a syphilitic.

(Re pars. 33 and 34.) That is very important. It might have a large gumma in the tongue or some part of the mouth and it is painless. It is surprisingly true when I tell you that these have been excised by the surgeon for cancer. One great thing is that they are painless and it is surprising with some of the well known tests we have at hand now that such an operation should take place. This should not be. If I was giving a paper a few years ago I would hardly mention tertiary lesions, but since the spirochaeta pallida has been discovered in the last few years, we are suspicious now the disease may be contracted from even a tertiary lesion. It used to be thought in the tertiary syphilitic lesion there was no danger, but it has been found in demonstration of the spirochaeta pallida that there is liability of contracting the disease from tertiary lesions.

(Re par. 35.) A large number of these probably will be known to you and you have seen probably more of them than I have. Often in these diseases there is disease of the hard palate and then the condition about the nose.

(Re pars. 36, 37 and 38.) That is to say, if you have got these lesions in the mouth that will not heal and when the patient tells you simply they often occur, and then again on the other hand you have the sores of the mucous membrane, along with the husky voice and the moth-eaten appearance of the hair, it is most suggestive of syphilis.

(Re par. 39.) Personally I always tell the patient that they should communicate to their dentist that they have this disease, although I imagine in most cases they do not follow it for reasons we can all understand. The position of the syphilitic is a difficult position. We know a great many of the cases are acquired simply from accidental inoculation, and we know that we are almost in duty bound by professional etiquette to keep the information to ourselves, but as we feel one of the most important things before treatment is to have the mouth well looked after and the teeth especially, and any irregularities, etc., corrected, I think if the physician would lay a little more stress upon it, the patient would inform his dentist.

From what may be said in a paper like this, it seems rather hard to recognize the lesion, it is true, but you will never recognize syphilis if you don't remember it is a constitutional disease. We could not condemn a person, so to speak, for one lesion. That is why we resort to so many tests before making a positive diagnosis.

DISCUSSION

ARNOLD D. MASON, D.D.S., L.D.S., TORONTO.

Mr. Chairman and Gentlemen,—I wish to congratulate the essayist, Dr. King Smith, on the very instructive paper he has prepared for us. It was with a great deal of pleasure that I read his paper and I have listened to his discourse on the subject with even more benefit.

The essayist has stated absolute and clear facts about this disease and it is hard for one to discuss such a paper. However, there are certain points in connection with this disease upon which it is well to elaborate.

Take, for instance, the seriousness of this subject in relation to the dentist's own health. When we consider the number of dentists who have been inoculated with this disease while practising their profession it surely behooves us to at least be able to recognize these cases when they present themselves to us for treatment, especially as carelessness in any one instance would produce such serious results.

This subject should be impressed upon our students and they should be brought into closer contact with these cases in our general hospitals, so that they may receive a better clinical knowledge of the disease.

It is not only the dentist practising in the populous centres who is in danger of inoculation. In the rural districts this disease is very frequently met.

Syphilis is without a doubt on the increase in Canada, a fact due to our increased immigration from the older countries of Europe, and it would be very wise on the part of health departments to impress the seriousness of the situation on our Governments, so that some preventive measures might be taken to lessen its spreading in our community. When patients are suffering from this disease in the secondary stage, that is at the time when the mucous patches and the secretions of the body are so infectious, it is the best policy of the dentist to refuse to operate until such time as the patient has received treatment from the general practitioner. We can then operate with much more safety. I would not throw up my hands in horror and refuse to work for syphilitic patients, as I have heard some dentists say they do. If the disease is recognized and the proper precautions taken, one can eliminate most of the risk. If emergency work must be done for a syphilitic in the secondary stage, it is well for the operator to wear rubber gloves or finger stalls.

After general treatment for the secondary stage has been given, physicians are in the habit of telling us there is no risk to ourselves whatever. I would like to ask the essayist if this is a fact, as I have known of a patient who contracted syphilis from the tooth of a two-year-old child. The child had been adopted and was supposed to be perfectly healthy. It happened, however, that the child had hereditary syphilis and the foster mother contracted the disease. Cases of this kind must surely put us on our guard.

One of the features of this disease, which is of special interest to the dentist, is the case where there is a perforation of the palate, leaving an opening into the nasal passages. These cases are very distressing to the sufferer and here the dentist can give much relief. I find people suffering from syphilis very sensitive about their condition and when they have such a condition as this they feel very thankful for what relief the dentist can give. These openings vary greatly in size, from the size of a bean to very extensive loss of the soft palate. I have seen cases where most of the soft palate was lost. These cases are best treated by means of some form of obturator, and here the dentist can use his ingenuity to procure the best results in the individual operation. Where these openings are small, why would it not be best to close them by surgical means?

In many syphilitics it is very hard to get alveolar abscesses and necrosed conditions to yield to treatment, and the dentist's efforts are often very discouraging. This is especially true in hereditary condition.

Pyorrhea and syphilis have no connection whatever. We may have inflammation and breaking down of the pericementum and of the alveolar and soft tissues, but this is very often a result of the general treatment. However, if we have a syphilitic patient suffering from pyorrhea our prognosis is indeed not of the brightest.

In cases of hereditary syphilis the orthodontist is also often in grave difficulties, as he cannot get the proper absorption or filling in of bony tissue in the movement of the teeth.

In closing, I would like to ask the essayist to say something about the 606 treatment. Are the results from it permanent and has it been tested for a long enough period to state definite results? Are we safe in working for these patients immediately after treatment?

We have in our College a connection with hospitals and our students could avail themselves of the opportunity of seeing these lesions and conditions in the mouth, at the hospitals, in all the different stages; and as I have had a little to do around the hospital during the last year I have noticed that the students have not availed themselves of these opportunities as much as they could have.

I had a physician who was practising in a small town outside of Toronto tell me of different cases that were rather sad, and they point out, as he pointed out to me, that those conditions are on the increase in the rural districts of the country.

With respect to operating after the patient has had general treatment, I think, gentlemen, that is the only sane way of treating the disease. We can operate with much more safety after the patient has had general treatment than we can if we go on treating these cases before they have had general treatment. As a rule the patients have general treatment before they come to us.

I would like to ask the essayist if this is a fact, that in the tertiary stage we practically run no risk. We have been told that; we are led to believe it by physicians practising now. It is not many weeks ago since I had two cases of syphilitics who were sent to me by a physician and he assured me everything was quite in shape to operate; they had had treatment for secondary symptoms. I have known of a case of a patient who contracted syphilis from a scratch on the hand received from the tooth of a child. This child was two years of age and had been adopted by this patient, and the foster mother from the scratch developed the disease. I found out afterwards that the child's parents had syphilis and I suppose the child had hereditary syphilis, but it rather shook my confidence in the fact that we could not contract this disease during the third stage.

Re opening in palate. I have seen several of these cases in the hospitals and I have had cases to treat. These conditions come from cases usually where the patient has had no treatment in the early stages of the disease; it was let run for some months or even years before it was treated and perforations of the palate resulted.

These cases all present different phases varying in shape and size. One case I had two-thirds of the soft palate was gone. You can close these small openings by a hard vulcanite button, or if you have to reproduce a lot of the soft palate you can use gold and vulcanize the rubber to it.

I don't know what you are to do with these cases, they are just stubborn cases, and often you have not looked far enough to find out where the trouble is. If you looked into the history of the case you would probably find the patient was syphilitic.

We have conditions in the mouth that look very much like pyorrhea, but find it is from mercurial treatment, and not pyorrhea at all. If you have a syphilitic patient suffering from pyorrhea, you have a very bad condition to treat, but I just want to make it plain that I don't think there is any connection between the two cases.

Six-o-six (606) treatment gives you very quick results. In fact in a few days I have had these patients sent to me after that treatment and have been assured I could go right ahead and treat them and work for them without any danger, but I would like the essayist to explain that treatment. (Applause.)

DR. DAY: I did not hear from Dr. McElhinney; that is to say, I did not get his paper. I heard from him, saying that he would send his paper, but I did not receive it. While I am on my feet, Mr. President, I wish to say I am sorry the essayist did not take time to explain to us the necessity of sterilizing all our dental instruments. From this paper a great number of dentists might look for all these symptoms which he has mentioned, but at the same time there are a great many cases of syphilis running for a great many years, running throughout a lifetime, where there are no oral manifestations at all. This is especially so in cases of females where there are never any oral manifestations. From the fact that there are so many cases of this disease and also from the fact that they invariably are sent to the dentists for treatment, we are treating just those very cases. Now if we are treating them all the time, and no doubt we are, and a great number of the cases which we do treat have not any of these symptoms in the mouth, still there is the spirochaeta pallida in the blood, and in cases of extraction or in treatment of the gums such as pyorrhea, the instruments come in contact with the blood, so that those instruments may infect other patients.

Another point: Dr. Mason spoke of the use of rubber gloves. With the number of syphilitics we are working for it would be almost impossible for us to wear rubber gloves. Another thing is, we don't know when we are working for them. There are some dentists who don't want to work for these patients. But, from the fact that we are working for them all the time and do not contract the disease it would go to show that we are quite immune from the disease. There is hardly any fear of getting it if the dentists keep their hands clean and in good condition, that is, if the skin of their hands is not broken.

I would like the essayist to go into some of the practical points that would be of help to the dentist in the practice of his profession. There is another thing that is a specific for it, and that is forty per cent. of calomel.

A MEMBER: I think the point made by Dr. Day is very good indeed. We have listened to an excellent paper by Dr. Smith and an able discussion of it. So far as operating with rubber gloves is concerned, it is not very convenient to do it. So far as refusing to operate where the syphilitic patients are concerned, I don't think there are any of us who are very fond of doing it, but the syphilitic patient is human, the same as anybody else, and it is up to us to work for them, and if Dr. Smith would give us some suggestion as to what we should use I think it would be very beneficial. We are not always in a position to have our hands in perfect condition. Take a man doing his own laboratory work, his hands are very often chapped and he very often has hangnails and he can't help it. Some suggestions from Dr. Smith as to the precautions that we should observe I think would be very beneficial to us.

DR. DOHERTY: I am particularly interested in the cases that you look for in younger children.

DR. LUNDY: I happen to be in a city—Brantford—where there is an institution for the blind and there are many pupils there, the majority of whom I believe received their blindness through this disease. I have treated a good many myself. In some of these cases we find the teeth very much marked. I would like to ask Dr. Smith, when he replies, if there is very much danger of contracting the disease in working for the offspring of people who have had syphilis.

Regarding syphilis I have seen several cases. Some I have worked for and some I have refused to work for. I think the dentist is justified in refusing to work for a patient under certain conditions. That is, he should receive treatment from the physician for several months before a dentist should undertake the case. I know of one case where a patient had syphilis. I examined him and I thought it looked like syphilis. After the patient had gone out I called up the physician and he said he was treating him for water on the knee, and he was very glad I had told him what I had seen, that syphilis was probably the proper diagnosis.

Dr. SMITH: I think as to the first remark by Dr. Mason about instructing students, it would be of great benefit to them all if they saw a few cases. No doubt charts are all right in their way, but there is nothing like cases. I hoped to have had a case or two here, but you can readily understand it is hard to get cases to present themselves before such a large body.

With reference to Six-o-six (606) I just returned on Saturday from a conference of medical men who are interested in skin diseases and syphilis and have had probably the biggest experience in America, and there is no doubt 606 is one of the very best things that we can use in syphilis. Under 606 lesions of the mouth disappear quickly, sometimes in a day or two; cases that are most distressing, where mercury has had no effect on them, almost clear up by magic. At the same time I have histories myself of three deaths from 606, and that makes us all a little frightened. The chances are it won't be used in the future probably as much as it has been in the past. They have all come to the conclusion that 606 does not cure syphilis and we must follow up with mercury. It gets rid of the lesions as far as lesions are present, but the mere fact that the lesions disappear is no proof that the disease is cured, but we follow up with the Wasserman test to confirm the results. Now they give as many as eight, ten or twenty doses once every week.

It was mentioned about children. I don't think there is any danger unless you have got lesions of the mucous membrane. It is only in infants and as a rule they don't live. The indications are the same as in the adult; and then there is the mucous membrane of the mouth, and that is why you have what we call the snuffles. They have got the lesions in the nose and they will suffer very severely; but what we call the latent manifestations which gives in children deformities of the teeth and of the skull where there is no abrasion of the mucous membrane or mucous patches, there would be practically no danger to those coming in contact with them.

Now, as I mentioned to one or two gentlemen, how I accounted for so little syphilis being contracted by the dental surgeon was that you are so careful in your asepsis. I don't know of any branch that carries it out more fully than you do, and probably you have been handling cases and didn't know you had prevented yourselves from inoculation simply by the routine that you carry out in your cases. With the modern method of sterilizing the instruments the danger is practically nil. That is to say, there is danger in coming in contact with the mucous patch, but if we did not have an abrasion on our finger we might touch, and even have the blood run over our finger and we would not contract the disease. I wouldn't like to say you are immune to it. You might have 99 cases and not get it. You have to have an abrasion. If there are no lesions present, and treating a syphilitic according to the modern investigation of spirochaeta pallida and by the Wasserman test, there would be no danger, but as I said before, I really think on account of the asepsis that you have taken, and I don't know any other precaution that you need take—we don't take any more when examining these mucous patches—there is no danger, but if we should handle them we dip our hands into 1 in 20 or 1 in 40 carbolic acid and then wash immediately afterwards; but at the same time there is always the feeling in handling those cases there is a little danger.

A lot of these questions will not be answered until ten or fifteen years hence, when more is known about the Wasserman test.

Now again in children, we have found by taking the Wasserman test that they are positive and very hard in many congenital cases.

Dr. Mason mentioned some cases which were very difficult to heal, especially where you get necrosis of the bone. With the use of salversoan good results are obtained.

I don't think syphilis is as common as the majority imagine. There are quite a number; but in Canada I know from the records of the general hospital and private practice we are fairly free from it compared with other cities, but no doubt with the foreign immigration we will have more of it; and again I believe that the disease can be stamped out and would be stamped out if we only knew that salversoan could be given without any bad result. The only thing we are a little frightened of is that every now and again we have a death, and, as you know, that puts a quietus on the treatment and prevents people using it for a long time.

Now, in New York they have to notify the city of every syphilitic case —not under the name, but by number—and no doubt in the future if that was carried out, as in other diseases, and 606 and mercury used, I think the ravages of this disease would be much less than we have now.

Dr. TROTTER: I think we owe Dr. Smith a deep debt of gratitude for the trouble he has taken to come here and present this subject in such an instructive and lucid manner and for the privilege we have had of examining these beautiful charts, and I have much pleasure in moving a hearty vote of thanks. (Applause.)

The PRESIDENT: I have a great deal of pleasure in delivering to you, Dr. Smith, the hearty vote of thanks of this society for giving us such a very profitable paper.

THE TECHNIC AND TREATMENT OF PULP CAVITIES

LEUMAN M. WAUGH, Buffalo, N. Y.

Read before the College of Dental Surgeons of the Province of Quebec, Montreal, December, 1912.

The problem of rational, scientific medication of diseased pulp cavities has gradually been solved for us, until to-day largely through the excellent work of Dr. J. P. Buckley, we have an armament of medicinal agents that are almost specifics, and their application as indicated is fast becoming standard. So satisfactory is their action in the hands of most operators, and again so disappointing at times in the hands of others, that we sought an explanation. On inquiry we find that many of our confreres expect success to depend almost entirely on the efficiency of the antiseptic and disinfectant agents with which they *medicate* pulp cavities, and that *mechanical* cleansing is looked upon as being of only *secondary* importance. We find that it is common practice with some to treat pulp cavities and associated alveolar abscess, for from two weeks to several months, and sometimes even a year or more, only then to decide that the offending tooth must be removed. We can conceive of no greater waste of energy and time on the part of the practitioner, and no parallel cause of suffering, loss of time and needless expense on the part of an unsuspecting and defenseless clientele.

No matter how efficient the medicinal agents, the basis of success in pulp canal work must ever be the proper opening of the pulp cavity so as to permit thorough *mechanical* cleansing, therefore the rules and technic of opening the pulp cavities will first be outlined.

The *general* rule is: Cut to weaken the tooth as little as possible, yet reach the chamber at a convenient point, then follow the specific rule: "The walls of the cavity should be continuous with the walls of the pulp chamber, but not necessarily parallel with or on the same plane."

OPENING THE PULP CAVITIES OF TEETH.

In *Incisors and Cuspids* the best place for entrance to the pulp chamber is through the central portion of the lingual surface. This will hold true when a proximal surface contains a good filling. When such a filling is defective it should be removed and the pulp chamber entered through the cavity.

The progressive technic in opening the pulp cavities of incisors and cuspids *when sound*:

(a) Perforate the enamel with a bibevelled dentate fiissure bur, of 1 m.m. diameter. A drill is made of this bur, by levelling the two sides for about one-fourth the length of an ordinary dentate or cross cut fissure bur. This is done with a stone in the engine hand piece. Sharpen frequently.

(b) Enlarge the opening with a larger bibevelled dentate fissure bur.

(c) Perforate the dentine with the 1 m.m. and larger bibevelled dentate fissure burs. With the small size, cut a shallow pit into the dentine, then increase its diameter with one of the larger size. Alternate in this way until the pulp chamber is reached. Avoid binding, heating and danger of breakage by frequently withdrawing the burs.

If pressure analgesia is to be employed, the solution may be forced into the dentinal tubuli in advance of the cutting.

(d) Straighten the approach by first opening to the incisal extremity of the pulp chamber with a smooth end dentate fissure bur—the end made smooth and convex with a stone in the engine hand piece—then with a tapered canal reamer, Kerr type, used preferably by hand, but in the engine when deemed best.

The canal is now ready to be cleansed. The procedure will be outlined later.

When the opening is made through a cavity of decay in incisors or cuspids, the technic will be:

(a) Cut to sufficient outline form to firmly retain a temporary filling. The final outline form and permanent anchorage will be made later.

(b) Excavate the walls until they are clean. All decay *must* be removed and the cavity made aseptic before uncovering the pulp. Remove softened dentine on the pulpal wall with spoon or discoid excavators, the latter often being better in anterior teeth.

(c) Should this expose the pulp, a small hoe may be passed into the opening and much or all of the remaining covering of dentine lifted off. If there is a considerable thickness of solid dentine, penetrate with bi-bivelled dentate fissure burs.

(d) Straighten the approach. A lingual extension in outline form will usually be necessary.

The canals are now ready for cleaning.

In *Bicuspids and Molars* the best approach to the pulp chamber is from the occlusal surface, in *bicuspids* through the mesial pit; in *molars*, through the pit in the central fossa.

Teeth containing good fillings, or properly fitted shell crowns should be opened as when the tooth structure is sound, penetrating filling, enamel or crown as the case may require. When there is a defective proximal filling it should be removed and the pulp chamber entered through the cavity. This will not always hold good with disto-occlusal defects.

Should a defective filling or cavity of decay exist from which good access to the pulp chamber is impracticable, a filling should be made in this area and the tooth opened as when sound.

Progressive technic in opening the pulp cavities of Bicuspids and molars when sound:

(a) Perforate the enamel with bibevelled dentate fissure bur of 1 m.m. diameter.

(b) Undercut the enamel with inverted cone bur, and chip it away with chisels. In molars the opening is usually enlarged to the mesio-buccal of the central fossa, to afford the best position from which the bur can be directed a little to the mesial of the central part of the chamber.

(c) Perforate the dentine with small—1 m.m.—and large bibevelled dentate fissure burs.

(d) The entire roof of the pulp chamber should be removed and cavity formed after the specific rule: "The walls of the cavity and pulp chamber should be continuous." Use a smoothed-end dentate fissure bur, exercising care not to cut the walls and especially not the *floor* of the chamber. For extension to the mesio-buccal horn in upper molars a cleoid used by hand is often best.

(e) The orifices of the canals are now found with a small, smooth, round broach, and if they are not naturally so, should be made continuous with the walls of the pulp chamber, with a tapered canal reamer of suitable size.

(f) Always clear the field of all cuttings which might get into and clog small canals.

The canals are now ready for cleaning.

When the opening is made through a cavity of decay in Bicuspids and molars, the technic will be:

(a) Provide firm retention for a temporary filling.

(b) Remove all decay and make the cavity asceptic *before* uncovering the pulp. Remove the softened dentine on the pulpal wall with spoon excavators.

(c) Should this expose the pulp, a hoe may be passed into the opening and much or all of the roof lifted off. If there is a considerable thickness of solid dentine, penetrate with bibevelled dentate fissure burs.

(d) Make the walls of the cavity and pulp chamber continuous.

(e) Make the walls of the pulp chamber and canals continuous.

(f) Clear the field of all cuttings.

Canals are now ready for cleaning.

Opening Constricted Pulp Chambers and Pulp Canals.

In cases when the pulp chamber is much constricted, the orifices of the canals should be located *before* cutting the walls of the pulp chamber. After the mouths of the canals have been found, the walls of the cavity and pulp chamber should be made continuous. The *orifices* of constricted canals should now be opened with a tapered canal reamer. A small spiral broach reamer should next be passed into the canal as far as possible with a careful boring movement, and withdrawn in a direction that will tend to straighten the canal. This should be repeated, using reamers of gradually increasing size until the canals are well opened. In obstinate cases phenolsulphonic acid should be used to soften the walls, which are then well broached with a spiral broach reamer. Subsequently neutralize with sodium bicarbonate, saturated solution. The canal should now be washed with sterile water* carried with cotton on a small, smooth, square broach, to remove the excess of sodium bicarbonate, wiped with cotton, and dried with alcohol and warm air.

The pulp cavity is now ready for further procedure.

REMOVAL OF THE CONTENTS AND CLEANING OF THE PULP CAVITY.

The contents of the canals *must* not be distributed until the field is cleared of all cuttings. Should further cutting become necessary after one or more of the canals are cleaned, these should be lightly plugged with gutta percha, to prevent the entrance of newly made cuttings.

PULP CAVITIES WILL PRESENT FOR CLEANING IN THE FOLLOWING CONDITIONS:

(a) With the pulp tissues insensible but not disorganized—analgesized with cocain or destroyed with arsenic.

(b) With the pulp tissue disorganized and in a state of decomposition, therefore infected, and the periapical tissue *not* involved.

(c) Containing pus discharging from a periapical abscess *without* sinus.

(d) In a state of periapical abscess with sinus.

(a) When the pulp is *not disorganized*, under "aseptic precautions," the tissue in the chamber, if any remain, should now be removed and exploration made of the root canals, with a *small*, smooth round broach. Next a barbed canal cleanser, Donaldson type, of relatively small size, after having been tested by bending, and dipped in a non-coagulating antiseptic as oil of cloves, is passed along a side of the canal to the apex or until it is felt to just bind, then withdrawn slightly until felt to be free. It is now rotated a little with a back and forth movement to make sure that it is moving throughout its full length. When one turn has been made it should be withdrawn. The entire contents will often come out the first time; if not, repeat. When the tissue breaks up into shreds, a small spiral broach reamer, dipped into the preferred antiseptic, should be repeatedly passed to the apical end of the canal and withdrawn in rotation. Then wipe out remaining filaments with a few fibres of cotton wound tightly on a smooth, square broach and moistened with the antiseptic and used in the

*Hydrogen dioxid should not be used in a pulp cavity containing fresh blood. It disintegrates the colored corpuscles, liberating the hemoglobin, which may flow into the dentinal tubuli; undergo progressive oxidation and discolor the tooth.

same manner. Cleanse the canal of blood when present, with distilled water and dry with chloroform* and warm air.

Now place dry cotton in the canal and a pellet moistened with phenol compound (Buckley) in the pulp chamber and tightly seal with base-plate gutta percha and leave for forty-eight or more hours.

At the second treatment, under "aseptic precautions," the dressing should be removed and pulp cavity filled, unless there is severe irritation of the periapical tissue, in which case a dressing of phenol-compound is placed *in* the canal and sealed. A counter irritant should be applied to the gum.

A third treatment is rarely necessary if proper precautions are taken in removal of the pulp.

To prevent discoloration, Dr. Black tells us, that it is "absolutely necessary to prevent the admission of saliva or other decomposable material *to the dentine* after the pulp is destroyed."

(b) *When pulp tissue is disorganized and infected, but the periapical tissue not diseased*, under "aseptic precautions," open the pulp chamber as outlined and seal a dressing of formo-cresol with base-plate gutta percha. Allow this to remain for from 24 to 72 hours.

If there is inflammation in the periapical area, with marked soreness of the tooth, the above procedure will be modified as follows:

Full excavation may be too painful, but the orifices of the canals should be located. Dress with formocresol. Apply a counter irritant, prescribe local refrigeration, hot pediluvium, a cathartic, and such other general treatment for inflammation as may be indicated. This not causing the symptoms to subside, suppuration should be induced or an artificial sinus made. Should this become necessary, treat as in condition (c) or (d) as the case may require.

At the *second* treatment the canals may be cleansed. Take "asceptic precautions" and with spiral broach reamers, explore and ream the canals. Avoid forming a piston. Phenolsulphonic acid (Buckley), will be a helpful adjunct when indicated.

Dry the canals with alcohol and warm air and place a dressing of formocresol in each canal and seal with base-plate gutta percha, for from 24 to 72 hours.

At the *third* treatment the pulp cavity should be ready to receive a filling.

(c) When the pulp cavity contains pus discharging from an abscess without sinus; under "aseptic conditions," open the pulp cavity, explore the canals and *mechanically* evacuate the abscess,* dress the *chamber* with formocresol and seal with base-plate gutta percha for from 24 to 48 hours.

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*Chloroform should be used instead of alcohol when phenol is to be used as a dressing. Alcohol would neutralize the action of phenol, if it were not all evaporated.

Should lack of time prevent evacuation of the pus, the dressing *cannot* be tightly sealed at this treatment.

At the second treatment open under "aseptic precautions," and if there is no visible pus, the canal having been reamed, a dressing of formocresol is sealed *into* each canal with base-plate gutta percha, and allowed to remain for about one week. Repeat and if the case does not yield to a *fourth* treatment, the canals being fully opened, it will usually be necessary to make an artificial sinus, and the treatment continued as outlined under condition (d).

(d) When there is *periapical abscess with sinus*, the tract is probed and the channel, if small, is enlarged with a bistoury. "Aseptic precautions" are now taken and the pulp cavity opened to the apical extremity of each canal. Normal saline solution is washed through the root and sinus. Phenol-compound is now pumped through the tract until the mouth of the sinus is cauterized. In probing, if carious bone is detected, phenolsulphonic acid should be used to cauterize the sinus. This is done by placing a pellet of cotton wet with the medicament into the pulp chamber and pressure produced with a piece of unvulcanized rubber—as in pressure analgesia.

When phenolsulphonic acid is used, it should be neutralized with sodium bicarbonate. The canal is dried with chloroform and warm air and phenol-compound is tightly sealed in each canal and allowed to remain for two weeks.

One such treatment will generally be sufficient for a cure.

If a second treatment is not effective, surgical means should be resorted to.

Establishing and Maintaining an Aseptic Field in Pulp Treatment.

An aseptic field is the first essential to successful pulp cavity treatment. In no part of dentistry is the near approach to surgical cleanliness so necessary. The pulp cavity should in no case be tightly sealed, until the pulp chamber has been cleaned under "aseptic precautions." At all subsequent treatments the strictest asepis should be observed. Almost invariably the application of the rubber dam will be necessary for this. After the dam is in place, the included teeth, before they are opened, should be scrubbed with A1 in 500 solution of mercury bichlorid, or alcohol, carried in a pellet of cotton, and the teeth dried with alcohol. When the pulp chamber

*Either aspirate or absorb as much as possible with cotton wrapped on a smooth, square broach. Pressure on the gum over the involved area will often be an aid.

is to be entered through a cavity of decay its walls should be excavated and made aseptic.

No instrument used in opening a cavity of decay should be used in a pulp cavity in which the tissue is aseptic.

No instrument used in opening through a cavity of decay should be used in an infected pulp chamber, until it is freed from debris and dipped in an antiseptic, as oil of cloves, or still better, sterilized by boiling.

All canal cleansers should be dipped in an antiseptic just before being used, whether they be new or were previously used, sterilized and laid away.

The tip of the thumb and fore finger should have an antiseptic, as oil of cloves, rubbed into the cuticle before being used for winding dressings for pulp canals.

In cleaning more than one canal at a treatment, no instrument should be passed from an infected into an aseptic canal.

All wipings of broaches and other instruments should be made on a piece of sterile gauze.

Saliva should not be allowed to enter a pulp cavity that has been made aseptic. Saliva is always teeming with bacteria.

These precautions are collectively spoken of in the paper as "aseptic precautions."

For Sealing Treatments in Pulp Cavities, base-plate gutta percha is usually best, provided it is properly placed. It should be warmed, shaped in the cavity and the excess trimmed away, then removed, warmed again and its inner surface moistened with oil of cajuput or eucalyptol, and finally placed in the cavity and cooled. Press to place gently to prevent forcing the medicament through the apex. In this way it will adhere to the walls and tightly seal the cavity. If gutta percha is improperly placed, oxyphosphate or oxychlorid of zinc will be better.

AMALGAM AS A FILLING COMPOUND

R. J. Reade, D.D.S., L.D.S., Toronto, Ont.

Read before the Eastern Ontario Dental Association, Ottawa, May, 1913.

Amalgam is the union or composition of mercury with two or more other metals at ordinary temperature by rubbing the mercury with finely divided particles of the metals.

Amalgam was probably used in the early part of the last century, but the precise date is unknown because its use began before dental journalism. As a consequence, our knowledge is confined to records found in books. The authors of these books seem to consider that those who used amalgam were charlatans. The use of this filling material at first appears to be confined to itinerants, those who travelled from town to town to practice their profession. Some of these itinerants were men of good ability, and developed into men who held high positions in their profession.

The first amalgam fillings were made by filing silver coins, and rubbing the filings together with mercury. Some of these fillings were good, and some very bad. Hence there began in the profession an acrimonious discussion concerning the use of amalgam as a filling material, and there was a sharp division between those who used amalgam and those who did not, the latter calling the other quacks. But to the more thoughtful and less prejudiced it was conceded that there was some merit in amalgam as a filling material. As a result there was an effort made to study the limits and possibilities of the material, and to improve its composition.

The first improvement was made by adding tin to the silver. By this addition the amalgamation took place more easily, and the mass set more quickly. There is another reason why at this time the use of amalgam became more general, and this was because the dental supply houses began its manufacture and sale. Although the amalgam was received with more favor by the dentists, yet there were many who could not speak enough evil of it.

Some of its enthusiastic advocates have regarded it as a "special Providence," while not a few of its bitter opponents have styled it "an imp of darkness." While some have claimed that it conferred "the greatest good on the greatest number," others affirmed that it is "used only by the incapable, and endorsed by imbeciles." In short, it has been charged and credited with defects and qualities which would indicate that it is at once the worst and the best material in existence.

In America there was a regular crusade made against amalgam by a number of the best men. Dr. McKellops, of St. Louis, never put in an amalgam filling, and could not say too much against it. Dr. Jonathan Taft, Dean of the Dental Departmetn of the University of Michigan, would not allow amalgam to be used in his college.

Yet while the fight was being waged against this filling material, a close study of the physical qualities of amalgam was being made both in America and Europe. It was shown that silver alone used as an amalgam expanded, and also that silver-tin amalgams contracted. In these silver-tin amalgams, the silver and tin were used in equal proportions. No systematic work was done, as yet, in studying the effects of amalgam made of different proportions of the two metals. Search was made for the different metals that might prove of use in an amalgam. The result showed that silver must be the basis used to give strength. Tin was used to give a better solution of the silver in the mercury. Other metals were found that would modify the amalgam, however important this modification might prove.

First, then, we had the coin amalgam—its color was poor; it dissolved slowly in mercury, set slowly, and did not pack well.

Next came Townsend amalgams—it had both shrinkage and expansion and little strength.

Then followed Foster Flagg—had a better color, less shrinkage and more strength.

At this point Dr. G. V. Black entered upon the scientific study of amalgams. These results have appeared in the journals. He found that the mixture of silver and tin in the cold state and in the form of an alloy produced very different results, although the proportions were the same. In the case of the former there was great expansion; in the form of an alloy they shrunk badly.

It was also found that aging affected the action of an alloy. For example, take the following experiment performed by Dr. Black. An alloy of 65 parts silver and 35 tin, made in hydrogen in a closed electric crucible, when used on the same day neither expanded or contracted. When used a month later it contracted, it required less mercury to amalgamate, it was softer, and set more slowly. This aging can be produced by setting aside the alloy for a time, or by setting the fillings in the sunlight and shaking frequently, or by washing the fillings in boiling water.

Here then was a difficulty, an alloy that gave neither expansion nor contraction when used on the same day as when made, a month later contracted. The next problem then was to produce an alloy that would neither expand or contract when annealed at the ordinary temperature of a room. It was found that annealed alloys of 70 per cent. or less of silver, and 30 per cent. or more of tin, all gave amalgams that shrank, while all containing more than 75 per cent. of silver would expand when fully annealed. It was then necessary to make a series of experiments a half per cent. apart to find a balance that would make an alloy that would neither expand or shrink while hardening. But as the purity of metals used for each batch of alloy would vary, so would the proportions of the metals vary to secure the desired result. Consequently there could be no fixed formula.

A number of experiments have been made to test the value of the addition of certain metals to the silver-tin formula. It was found that cadmium and aluminum injured the alloy. With zinc the amalgam will continue to change bulk for a long time, which, of course, renders it objectionable in an alloy. Gold and platinum do not injure the alloy, neither do they add to its usefulness. Copper in not more than five per cent. adds to the strength of the amalgam without otherwise injuring it.

Regarding the color of the amalgam, the question that presents itself is, can the color be improved? Dr. Black says no, and so does Adolph Witzel, who has given much study to the subject of color. Zinc in considerable quantity will affect the color, but it injures the usefulness of the alloy.

Do amalgam fillings discolor teeth? Dr. Witzel says that as long as an amalgam filling excludes moisture and sulphuretted hydrogen there will be no discoloration of the tooth substance. It is the shrinkage of the amalgam, or the improper placing of it that results in a leaky filling that allows the entrance of moisture and sulphuretted hydrogen. The discoloration takes place when moisture and sulphuretted hydrogen come in contact with the filling and the tooth, then the sulphuret of silver is formed and penetrates the dentine. It should be noted that the filling itself, that is the exposed part, may become discolored without affecting the tooth substance. It is stated by Dr. Black "That a filling may exclude microorganisms and yet not be close enough to exclude moisture containing sulphuretted hydrogen. Therefore, we may have wide discoloration of tooth substance without recurrence of decay."

The strength of an amalgam of silver and tin, will depend upon the proportions of the metals. The greater the proportion of silver under 75 per cent. the greater the strength. If the silver be in a greater proportion than 75 per cent. the amalgam will be less strong and more brittle. A silver-tin amalam containing 72½ per cent. of silver if made into a cube, .085 inch will support about 400 lbs. A one inch cube will support 4,000 lbs., which is about the same strength as has dentine. If 5 per cent. of copper is introduced to displace that per cent. of silver the cube will be a little stronger.

How to mix the amalgam.—There should be just sufficient mercury to thoroughly amalgamate the metals. The proper mixing will depend upon judgment and must be learned by experience. When the mass is thoroughly mixed it should take an impression of the markings of the skin. Too much free mercury, as well as too little, weakens the filling.

The flow of amalgam is the property of moving under a fixed pressure. When a weight is applied to silver it will yield a little at first, and then give no more. In the case of tin, the metal will yield under the weight and continue to yield till it becomes a sheet. Therefore, a silver-tin amalgam containing less than 60 per cent. of silver will yield under slight pressure. This yielding increases with the additional percentage of tin.

Spheroiding of amalgam is a term applied to that property of springing away fro mthe cavity walls. This spheroiding occurs before setting, not during the process of setting. John Tomes showed that a soft amalgam when pressed into the angles of a cavity would withdraw from the angles, and walls. When the filling was removed it was found that the corners were rounded. This property of spheroiding is different from that of shrinking. Black says a soft filling will be loose even though the amalgam does not shrink.

The effect of expressing the mercury from mixes of amalgam. Experiments have shown that in the expressed mercury there are traces of tin. But our great authority on the subject says that the expressed tin is that portion of the metal which is free in the alloy and not that portion which has been properly combined. If an alloy is carefully prepared, an excess of mercury expressed does not change the shrinkage or expansion of the alloy. If the excess of mercury removes the tin, then the alloy should expand just the same as if less tin were used in making the alloy.

The shrinkage and contraction of an amalgam is not under the control of the operator, but depends upon the proportion of metals in the alloy. So if the operator desires to make a filling that will not shrink nor expand he must depend upon the honesty of the maker of the alloy.

Although the shrinkage and contraction of the amalgam is not under the control of the operator, yet the strength of the filling will be directly under his control. The strength is affected,

1. By the alloy. The silver tin alloys will differ in property from the modified alloys, according to the metals incorporated. For example, 5 per cent. of copper will need a little more mercury and will make a little stronger filling.

2. The amount of mercury used in making the amalgam will effect the strength of the filling. The more the mercury the less the strength. The amount of the mercury must be determined by experiment. Experience will give a good idea of the consistency of a mix.

3. Upon the kneading of the mass. As tin controls the solution of silver in the mercury, so the more tin in the alloy the less kneading required to amalgamate. Consequently an alloy with a larger portion of silver will require more kneading to properly amalgamate the mass. If a thorough amalgamation of the metals is not obtained the strength of the filling will be impaired.

4. The proper packing of the amalgam plays a very important role in the success of the filling. Firm pressure is required to condense the filling properly. The required pressure can only be applied when the cavity has four walls to permit the required pressure for the packing.

Coronal cavities have the four walls required. In proximal cavities of bicuspids and molars, there are but three walls. This difficulty is overcome by the use of a matrix which supplies the fourth wall, and allows proper condensation to give the required strength.

FILLING TEETH WITH AMALGAM.

My paper is not a discussion of the relative merits of amalgam and gold fillings; nor of amalgam fillings and gold inlays. My purpose is to point out how an amalam filling may be made that will give excellent service. These fillings cannot be easily made, and it is necessary that the operator intelligently proceed in his work. If amalgam fillings are put in carelessly, or without knowledge of the necessary manipulation, then the material must not be condemned for the faults of the operator.

First in order cames cavity preparation. As this paper was prepared for the Eastern Ontario Dental Society I need not discuss cavity preparation, for those who attend these meetings are well up in the subject. All that is necessary to point out is that the same care and detail should be followed out in preparing a cavity for an amalgam filling as for a gold inlay. Perhaps there is not quite the same necessity for convenience of access as in the gold inlay, and too much bevelling of the enamel margins is not desirable.

The cavity must be kept dry so that there will be no moisture between the walls of the cavity and the filling. It is just as necessary to be careful with amalgam fillings as it is with gold fillings. If care is not taken do not blame the fillings for unsatisfactory results.

When there are but three walls to a cavity the proper adjustment of a matrix is of great importance to the success of the operation. A matrix may be made of various metals as German silver, copper, etc. The adjustment of the matrix to the gingival margin is most important. A wooden wedge may be introduced to bring the matrix close to the neck of the tooth. Also a ligature of silk may be of use to draw the matrix to place. A separator will serve a double purpose, namely of pressing the matrix close to the gingival margin of the tooth, and also of separating the teeth for the purpose of contouring.

When the matrix is properly adjusted so as to form the fourth wall, then the filling is next placed. Place enough amalgam to fill the cavity about quarter full. This is compressed into place by firmly pressing with the largest instrument possible to use in the cavity. These pluggers should have flat surfaces. Too much emphasis cannot be placed upon the importance of proper compression. If the mass is not properly packed the filling will lose its strength. A very good plan after hard compression is to place in the cavity a ball of cotton to fill it, then use a broad plugger in an automatic mallet on the cotton. This will insure compression of the mass in every direction and close adaption to the walls and margins of the cavity.

Cement has been successfully used with amalgam. It is placed just the same as an amalgam filling with this exception, that before placing the amalgam, cement of the consistency used in setting gold inlay, is introduced into the cavity. After the first portion has been properly compressed more amalgam is added, and treated in the same manner until the cavity is filled. It is best to overfill the cavity and afterwards remove excess. After being allowed to harden for a few minutes the filling is trimmed.

The removing of the matrix requires great care in order not to break or fracture the filling. First straighten the ends of the matrix, and it may be gently removed occlusially. If not, then cut off one end of the matrix and try to remove either lingually or buccally. If this is not readily done then use a separator, which will at once release the matrix without endangering the filling by fracture.

After excess of material is removed, and the overlapping of margins cut away, the case is ready for polishing, if time enough has elapsed for the setting of the filling. For finishing and polishing between the teeth sandpaper strips are used. Care must be taken not to interfere with the contact point. To polish the gingival portion of the filling the strip must be between the teeth below the contact point. For other accessible portions of the filling disks are used. Then pumice stone is used. Between the teeth it can be carried on narrow strips of rubber dam.

Before dismissing the patient syringe thoroughly between the teeth to remove any debris that may be left after completing the operation. This will prevent inflammation around the gums. For if bits of filling or cement lodge between the gums and the teeth an irritation may set up that will finally result in the loss of the tooth by pyorrhoea alveolaris.

Dominion Dental Journal

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SHOULD THE PHYSICIAN TELL

At a recent dental society meeting a dentist related a case in which a physician sent him a patient for treatment who was suffering from syphilis. The physician gave the dentist no hint or warning of the patient's malady.

This would seem like a compliment to the dentist,—whom, we presume, was expected to recognize the disease on sight, or, on the other hand, it may have been that the physician cared little whether the dentist himself contracted the disease, as might occur through abrasions of the hands, or his patients should get it if proper aseptic precautions were not taken.

A physician who was present at the meeting made this explanation of his confrere's action: "You know we are not allowed to tell anyone if a patient has syphilis," but he added, "the physician in this case should have made it clear to the patient the danger of infecting others, and he in turn should have told the dentist." A dentist or anyone else who depends on a patient to tell him of his malady stands a mighty slim chance of getting the information. It is notorious that patients suffering from syphilis or gonorrhoea will withhold the information even when they know it is to their own detriment, so why should they be expected to give information which would protect others.

It has been held that the relation of the physician and patient is a private matter. In other words, the information which a physician comes by in the practise of his profession must not be divulged. This would seem to be perfectly proper so long as the withholding of this information did not cause others to suffer. It is upon this latter now-accepted principle that all immigration and public health laws depend. We exclude from our country the mentally and physically defective and those suffering from any disease which might endanger others. We not only publish to those near by the fact that certain people have a contagious disease, but we place certain restrictions upon them. Strange as it may seem, venereal diseases are not classed as notifiable, although tuberculosis is. In New York such diseases are notifiable, and sooner or later it must be so everywhere. It is little short of criminal for a physician to send a patient known to be in the contagious stage of syphilis to a dentist for treatment without warning him. There is nothing so cruel in the whole category of crimes as causing the innocent and helpless to suffer. There are few physicians who would fail to tell a dentist that the patient they were sending was suffering from syphilis, and there are still fewer who, having failed, would make the excuse that they were not allowed to divulge the information. The physician should not only tell the dentist, but he should be compelled to tell the State authorities.

THE UNION MEETING

The union meeting of the Nova Scotia, New Brunswick and Prince Edward Island Dental Associations held at Moncton, N.B., July 9, 10, 11, was a marked success. The program was carefully prepared and carried out on time and in order, which is rarely accomplished at any large meeting. The attendance was good, the clinics instructive and given one at a time. The exhibits were unusually large. The entertainment was a great success. The City Hall proved to be an excellent place of meeting; there was plenty of light, numerous rooms of suitable size for general meetings, private clinics or exhibits. It is impossible to give an adequate conception of the programme in a small space. The published proceedings will show a program equal in merit to any convention in this country.

The entertainment deserves special mention because all of its details may not get into the proceedings. The ladies of Moncton gave a tea at the Moncton Golf Club, where many games of golf were played and a putting contest for ladies was carried out. There were many drives, teas, and private entertainments provided for the visiting ladies. A feature of the entertainment was the donation of four handsome cups to the winners of the events in the sports by the dental travellers of the Maritime Provinces.

The meeting was closed by a luncheon given on the lawn of Mr. Humphry, where an old-fashioned picnic was being held in aid of the hospital. There were many eloquent speeches and numerous expressions of good-will and good-fellowship, but Dr. Moore, of St. Stephen, N.B., surpassed all others in his reply to the toast to the ladies. His speech won the praise of the militants, non-militants, the suffragettes, the ladies and the women present. At the close of the luncheon the sports were carried out. The dentists defeated the local golf club, and Dr. J. M. Magee, St. John, won the handicap.

EDITORIAL NOTES.

Dr. J. B. Willmott represented the R.C.D.S. at the National Faculties Association.

The new building of the Dental Department of Laval University will be ready for occupation in October.

Premier Gouin will officially open the Dental Department of Laval University, Montreal, for the session of 1913-14.

In the May issue of the DOMINION DENTAL JOURNAL appeared an article by Dr. Jos. Nolin. This should have been credited to Dental Brief.

The Dominion Medical Council has been organized upon the same basis as the Dominion Dental Council, except for the greater cost of administration.

The following dentists are locating in Toronto: Dr. S. B. Gray, Stratford, Ont.; Dr. W. C. Smith, Welland, Ont.; Dr. M. A. Fallis, Bobcaygeon, Ont.; Dr. A. Weldon, Beaverton, Ont.

The Moncton dentists organized and carried out a very successful meeting of the three dental associations of the Maritime Provinces.

Dr. Dayment, Buffalo, is preparing to begin practice in Toronto.

Does anybody know what was in the mind of Sir James Whitney when he said at the opening of the Toronto General Hospital that a Commission would be appointed to investigate the teaching and administration of dentistry?

Obituary

George Christie Mathison, L.D.S., D.D.S., died at his home, Winnipeg, Canada, on June 14, 1913, in his thirty-seventh year.

In the passing of Dr. Mathison the profession of dentistry in this country, and particularly Western Canada, has sustained a loss that will long be felt. Both for his charming personality and his loyal support of all matters pertaining to the profession, he won for himself the love and admiration of all who knew him.

He graduated from the Philadelphia Dental College and the Royal College of Dental Surgeons, after which he settled in Winnipeg about 15 years ago. Even from the first he was looked upon as a leader, and was shortly honored by being elected a member of the dental board of the province, where he did faithful service for six years.

Being a man who kept well abreast of the times, he was an active figure in all society meetings and conventions with which he came in contact.

Dr. Mathison was not an ordinary man, but one of particularly fine capabilities, a splendid interpreter, a deep thinker, strong in business, aggressive in all things, and above all dearly loved. His loss will leave a great void in the hearts of his host of friends, a void that can never be filled.

DEATH OF DR. GEO. C. MATHISON.

Just as we go to press word comes of the death of Dr. Mathison, of Winnipeg, Manitoba, one of the brightest lights in the profession in Canada. Dr. Mathison died after a brief illness from some affection of the brain, leaving a void in the professional ranks of his native country which can never quite be filled. He was one of the most charming, versatile, loyal, and lovable men in dentistry, a power for good in the councils of his profession, and a friend of every man in it. Yesterday the world was brighter because George Mathison lived in it—to-day it is darker because he has gone out of it. He did great good while here, but he did not remain long enough with us.—*Editorial, Dental Review.*

ELGIN DENTAL SOCIETY.

Reported by H. H. Way, D.D.S., St. Thomas, Ont.

At the annual election of officers of the Elgin Dental Society, Dr. E. A. Clarke was made president; Dr. H. H. Way was re-elected vice-president, and Dr. F. E. Bennett was re-elected secretary-treasurer. The agreement to close offices on Wednesday afternoons, through June, July, August and September, was ratified.

On June —, 1913, Dr. E. A. Clarke, St. Thomas, was married to Miss Leah Gwendolyn Kerr, of Sherbrooke, Que.

Dr. J. J. Teetzel, who has for a number of years past been successfully practicing in the West Indies, is visiting his old Canadian home; he is considerably inconvenienced by a partial displacement of the right clavical, otherwise the Dr. is looking and feeling fine.

OFFICERS, TORONTO DENTAL SOCIETY, 1913-14.

President, W. E. Willmott; 1st Vice-President, Geo. W. Grieve; 2nd Vice-President, F. C. Husband; Secty.-Treas., J. A. Bothwell.

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Secty.-Treas.—Dr. Cox, Edmonton, Alta.

Drs. Manley Bowles and K. C. Campbell were among those elected to Provincial Commissions.

The next annual meeting will be held in Winnipeg.

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Original Communications

SPECIAL ATTACHMENT FOR PARTIAL DENTURES

J. Wright Beach, D.D.S., Buffalo.

Read before the Ontario Dental Society, May, 1913, Toronto.

It is my purpose to present to you a system, which possibly I might dignify by that term, of special attachments for retaining supplied teeth, and without commendation or recommendation, I present it to you for your disapproval as well as approval where merited. It is the result of about twelve years' development and has supplied rather an important place in my own practice.

The method consists in retaining supplied teeth by means of full and partial clasps. By the full clasp we refer to the so-called "crib" introduced by Dr. Jackson in his method of orthodontia; and by the partial clasp known as the Bonwell or three point contact clasp. These means of retention are supplemented by palatal and lingual bars, also by the interdigitating wire which I will endeavor to explain and will show you a few views which I will attempt to describe.

Slide 1 represents a case to which this work is well adapted, the teeth being missing from the cuspid on the right posteriorally, also from the bicuspids on the left. This view is shown to give you an idea of a case to which this work may be successfully applied.

Slide No. 2 shows the piece constructed for the case which I just showed you and consists of an attachment by means of partial clasps on each cuspid, the interdigitating wire passing about the palatal surfaces of the anterior teeth, and the basewire bar which is adapted to the roof of the mouth. This is constructed with rubber saddles and in a general way gives an idea of the work for such cases. Of course one can use metal saddles and elaborate upon this method as much as they wish in regard to the technique. Slide No. 3. This is another view on this slide, which was prepared by placing two slides together, and shows the position of this particular piece in place. The principal feature to be brought out is the adaptation of the interdigitating wire to the palatal surfaces of the anterior teeth, and although you might feel that this wire is not needed in this case to aid the attachments, yet there is always a slight support which each tooth gives to a piece without posterior abutments or where one abutment may be lacking. The interdigitating wire supplies the support which holds the piece firmly upon the ridge at the heel.

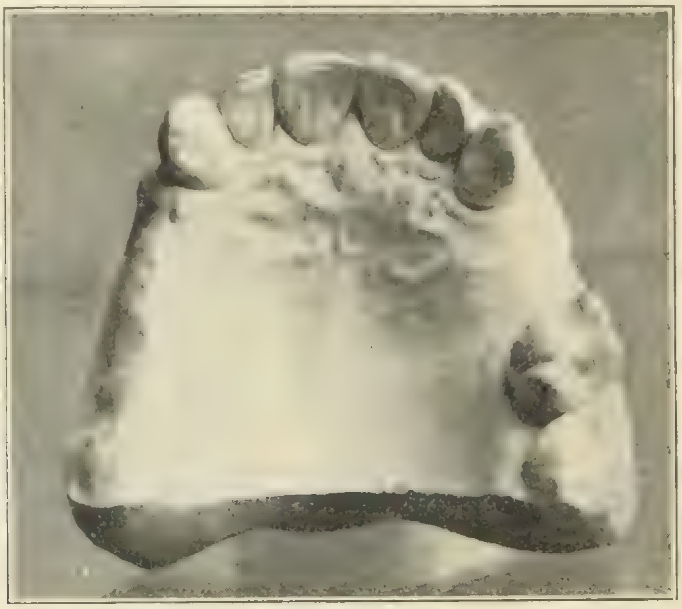

Fig. 1.

Slide 3B. This slide shows the same system applied to a two tooth bridge. Many of you may not deem such a piece practicable, but there are many cases to which this idea will apply and can be used with great satisfaction, provided due precautions are taken. This consists of a partial clasp at either abutment and Steele interchangeable porcelain posteriors supplying occlusal surfaces and buccal surfaces for the bridge. These clasps are made from No. 13 half round clasp wires, and they have upon the occlusal surface a little rest or tang, the object of which, naturally, is to keep the piece from going to the gums and causing undue pressure.

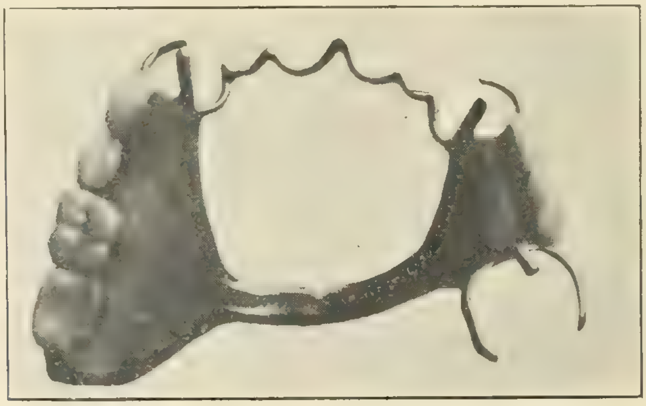

Fig. 2.

In fitting these pieces it is my custom to fit this base or metal portion of the bridge into place, first adapting the little tangs or the occlusal rests to the occlusion of the contacting teeth, and fitting and adjusting the clasps to their proper position in relation to the abutment teeth, after which one of the porcelains is placed in position, the occlusion noted, and if it is quite perfect it can be adjusted properly. After that one is clear, the next one is taken in regular order and thus made correct before the porcelains are cemented to the backing. It is a very simple method of construction, and can be done without injury to the porcelains on account of using the interchangeable teeth.

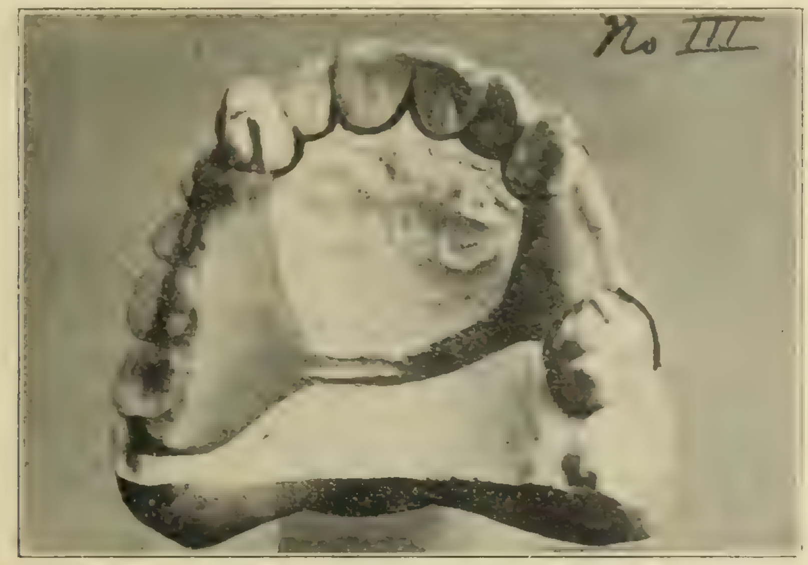

Fig. 3.

Slide No. 4. This slide is shown merely to give an idea of the relative position of the clasps and the soft tissues. It, of course, is essential that sufficient room be given between the clasps and the soft tissues to permit of proper cleansing and also to allow the normal oral fluids to bathe these tissues and keep them healthful. The teeth here shown are particularly short, and it is not typical perhaps to illustrate this point, and these clasps are carried down quite as far as I ever place them. The clasp on the bicuspid is a little deceiving, because, having been

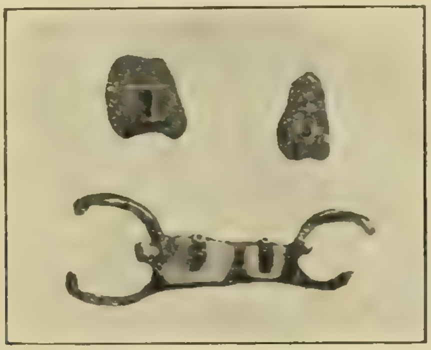

Fig. 3B.

slightly bent to the contour of the tooth, gives the impression that it is higher up on the tooth than it really is, but it illustrates a condition which naturally impresses itself upon the mind of the dentist regarding the protection of the gums, as well as the tissues of the teeth themselves. I might say, at this time, that it is my custom to bathe about the posterior abutments with a ten to twenty per cent. solution of silver nitrate, and ofttimes where I feel there is a possible chance of disintegration under the clasp, a very slight amount of oxy-phosphate of copper will protect the teeth and in a sense immunize them to decay, and it is in the observance of these little points that this method is made practicable.

Slide No. 5 shows the component parts, we might say, in the construction of a practical case such as we have shown; in fact these parts were used in that case. For instance, A shows the little interdigitating pieces which are fitted individually to the tooth, and these are adapted to the palatal or lingual surface of each tooth. After the two little pieces represented here are adapted, they are placed in position on the cast and slightly attached together with hard wax; they are then removed, invested at the outer points, that is at the extremities as it were, and a very small amount of solder used to unite them. Then the next two are proceeded with in the same way so that we have them in pairs. The two pairs are then placed upon the cast, attached at the central point with hard wax, the investment made as before and combined by soldering into four individual pieces, as it were. In that way the process is continued until as many teeth are fitted with the interdigitating wire as are involved in the construction of the piece.

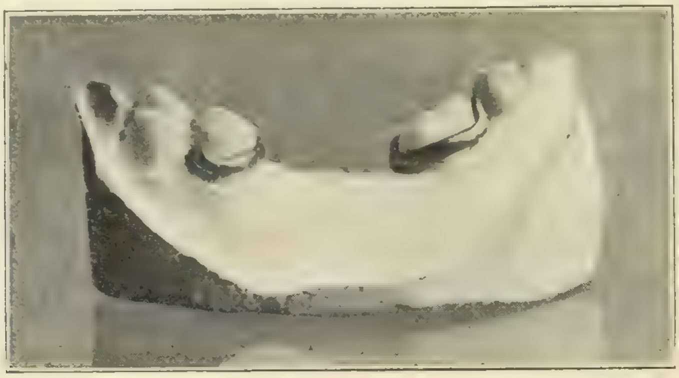

Fig. 4.

The next step is the fitting and adjusting of the clasps. These clasps at C, which are for rubber work, are made in three pieces. Perhaps for bridge work, which was illustrated in the slides just shown, two pieces is all that is required. That is, the projection placed distally upon the clasp, is simply there for the purpose of attaching it into the rubber, is not used. The clasp is formed to the tooth, fitted into its proper position, using No. 13 clasp wire. Then the little occlusal rest, which extends from the base of the clasp to the occlusal surface of the tooth, is turned at right angles, projecting upon this portion of the tooth to whatever degree you desire, and attached with hard wax at its junction with the clasp. A piece of clasp wire is then attached at a point favorable to its extension into the vulcanite. It is then removed and the investment made at the different points to best hold them in position, and duly soldered. That completes the construction of the clasp, which, of course, is familiar to you all. The next step is to form the base wire, shown at D, which follows the palatal surface of the mouth. This is made of No. 12 half-round clasp wire, and is retired about the thickness of ordinary tinfoil from the palatal surface so that when the piece settles to place it will come into very gentle contact with the soft tissues. I may say it is rarely necessary in our work to change the bar in any way. I can recall only one case within the last several months where there was any pressure, and that was due not to the fitting of the bar, but to another slight maladjustment. This view at E is presented here simply to show the assembled piece, as it were, and it combines every attachment necessary in the development of the method it has received up to the present time. For instance, we have the partial clasp; the full clasp or Jackson crib; the base wire uniting the clasps and the interdigitating wire.

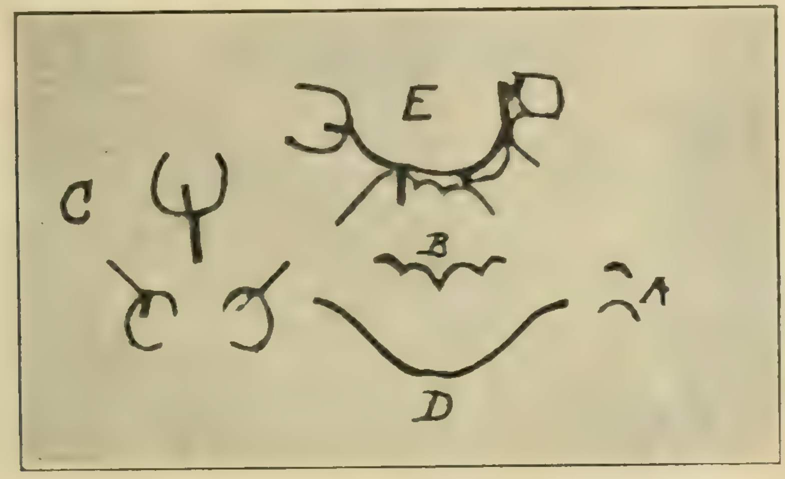

Fig. 5.

Slide No. 6 shows an extreme case of one tooth, and not necessarily advisable, but shows what can be done by this method, and yet it is, in a measure, practicable. I recall the case of a lady who wore a partial rubber denture for supplying the cuspids, which never developed. She wore this for a good many years, so that she had practically gone through life wearing a little rubber denture, which had always been an annoyance to her. She had been in the hands of the pyorrhea specialist, who had, to a certain degree, benefited her case, and yet these teeth were not sufficiently stable to permit of fixed attachments. The little one-tooth clasp bridges, as shown in this illustration, were placed several years ago, and this patient has enjoyed freedom from the denture ever since. She comes to me periodically for prophylactic treatment, and these little pieces are removed; the teeth at certain points, wherever there is contact with the little clasps, are treated with silver nitrate, rendering them practically immune to dental caries, and she is very happy in the use of these little pieces.

(At this point the light failed.) Possibly we might occupy the intervening time by allowing those present to ask any questions that they wish to in regard to this work.

QUESTION: As to this oxy-phosphate of copper, do you put it on the tooth or on the clasp?

DR. BEACH: I use oxy-phosphate of copper by placing a little on the inside of each clasp, smearing it as it were upon the surfaces of the clasps which may come in contact with any part of the teeth. Of course, we confine this to the posterior teeth. Naturally oxy-phosphate of copper causes more or less discoloration of the enamel surface, but it is entirely under these clasps, and if in any event these pieces were removed permanently the oxy-phosphate of copper stain can be removed as readily as that which comes from nitrate of silver. There are other means which may be used, but I have found this the most satisfactory up to date. Anyone who can make a suggestion better than that I would be very glad to hear.

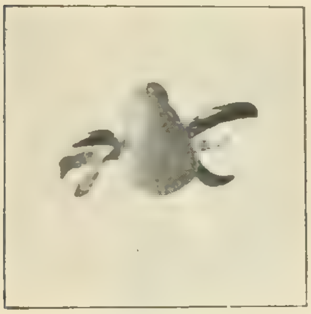

Fig. 6.

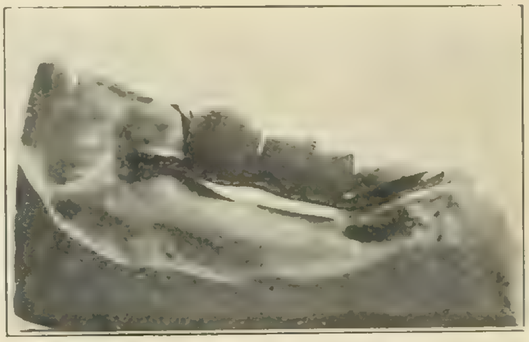

Fig. 7.

QUESTION: How long would you expect that oxy-phosphate of copper to stay on there?

DR. BEACH: That would vary according to the conditions. If the clasp is in very close contact with the entire surface, naturally the oxy-phosphate of copper would be pretty well protected, although a very thin layer. However, it will remain sufficiently long to accomplish the work in any event. But the pieces are removed, of course, by the patient whenever it is practicable, so I find that in the majority of instances where we have control—and we should have such cases under control, as we should every other case in practice up to a certain point—that seeing the patient once in one or two or even three months' time gives us an opportunity to protect them without having to remove many of the pieces. There are exceptions to all rules, and we all have patients in whose mouths we could place nothing that would not become unsanitary almost as soon as you have discharged the patient, so that we have to regulate our plans of procedure according to the conditions.

(At this point the lantern was again in working order.)

Of course we can substitute formalin in the anterior teeth for a preventive or immunizing agent, which is very good indeed and is eminently practicable.

Slide No. 7. This case shows its position in the mouth, and has been worn for a long time. The clasp on the molar perhaps is a little nearer the gum line than we would place it ordinarily; however, there is ample room for proper cleansing. The piece has been frequently removed, and although this gentleman has reached an age where we often find a general disintegration of enamel and dentin, a sort of dissolution, as it were, yet by treating the mouth and the teeth periodically I have warded off any particular amount of disintegration, and when evidence of its presence has been shown, it has been treated with oxy-phosphate of copper at that particular point. It also shows the self-cleansing surface underneath, which should always be secured when possible.

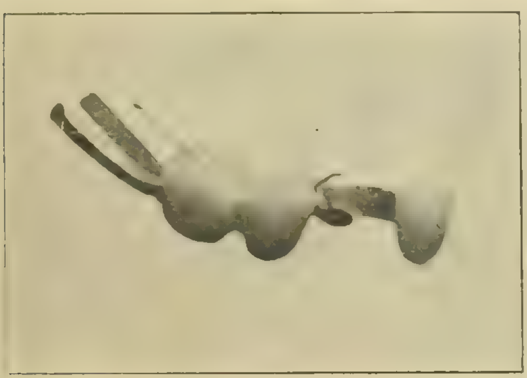

Fig. 8.

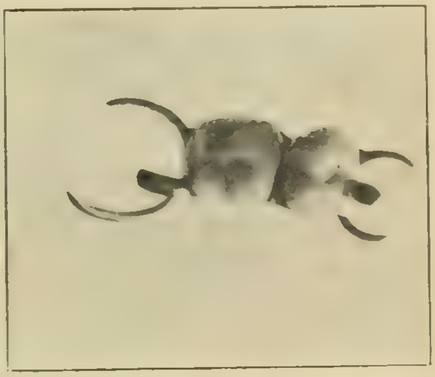

Fig. 9.

Slide No. 8. This is the same piece shown from the occlusal surface and is presented to give an idea of the position which these tangs or occlusal rests should take. We should be careful to so place them that there is very little leverage laterally; that these occlusal rests do not form a lever which would naturally make some movement of the piece at the extreme point of the fulcrum. This piece has only one tang or occlusal rest because of a close occlusion, but very frequently we find it advisable to place a second little tang, and I have pieces where I have been obliged to place a third one in order to overcome the lateral rocking. I have drawn with the pen a second tang to show the position it might occupy, and when that precaution is taken there is no rocking whatever.

Slide No. 9. This shows how we may carry a tooth by swinging a bar back of another tooth. We are supplying in this case the bicuspid, and this bar is brought in fairly close relation to the tooth which it surrounds or passes back of. The patient removes the piece and carefully cleanses the natural teeth about which it rests. I have also just drawn with the pen a little spur or tang which might be used in this case to overcome any anterior leverage which would wear upon the forward tooth, but in this particular case it was not found necessary.

We are now coming to the larger pieces. I have shown those examples of smaller pieces to illustrate what can be done under proper conditions, but I do not advise their general use. I am merely presenting them to you, and it is for your own personal judgment to determine whether or not you consider it practicable.

Slide No. 10 illustrates a lower piece, as you will readily recognize, involving the base wire, interdigitating wire and partial clasp. Again the subject comes up of the necessity or practicability of the interdigitating wire. I consider it very important indeed, because it overcomes one of the very disagreeable conditions we have always had to contend with when the base wire alone was used with the clasp. It avoids raising of the saddles at the heel. Also, if it were an entire rubber piece, as we formerly made them, the rubber is constantly stripping the gum tissue from the lingual surfaces of the anterior teeth, exposing the roots, causing resorption of the alveolus and consequent recision of the gums. The interdigitating wire makes of each remaining tooth a factor or supporting element in this work without unduly taxing each tooth, and in that way we are able to have fixation and comfort. The point may arise in your mind that perhaps these little wires are disagreeable to the patient and are not easy to become accustomed to, but in my experience it sometimes proves the reverse. They seem to take to them very readily and the moment they are placed in the mouth feel that it is something they can manage and enjoy. This method leaves the gum tissue free for the action of the oral fluids and contact with the air, and these little wires are placed, not against the gum tissue, but are relieved sufficiently so that they rest upon the lingual curve or eminences of the teeth.

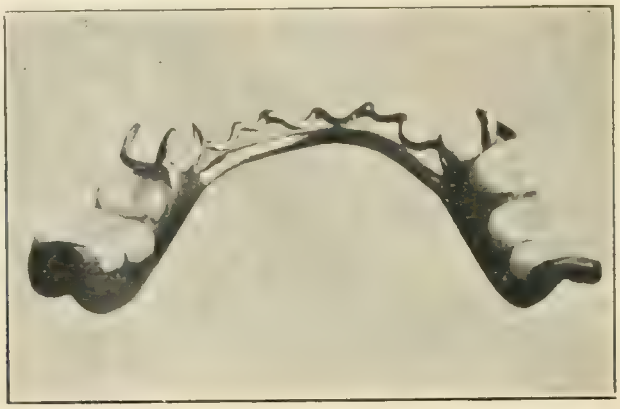

Fig. 10.

Slide No. 10 shows a piece which illustrates one in which there is no posterior abutment. Back of the first bicuspid the teeth are missing.

This particular class of cases usually raise at the heel. This method positively overcomes that tendency without injury to the tissues in any way.

Slide No. 11 illustrates how teeth may be placed on one side of the mouth, and attachments involving several teeth on the opposite side, and yet without undue strain upon them. These are cases which have always caused us more or less anxiety, and we have passed them along without hope of giving them satisfactory treatment, and as you can readily see, this case involves the base wire, the partial clasp, the interdigitating wire and also the full clasp, and I have with the pen indicated two little projections extending laterally either way from the full clasp which involves three teeth instead of one in the support. This treatment to me has been very satisfactory indeed, and has proven a great help in innumerable instances. The construction of the full clasp is after the Jackson method. The piece is swedged to the lingual surface of the supporting teeth, and the wire part of the clasp is made of round nineteen gauge clasp wire, as well as the little lateral projections I have shown you.

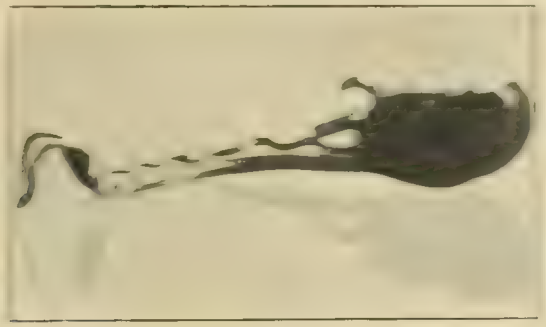

Fig. 11.

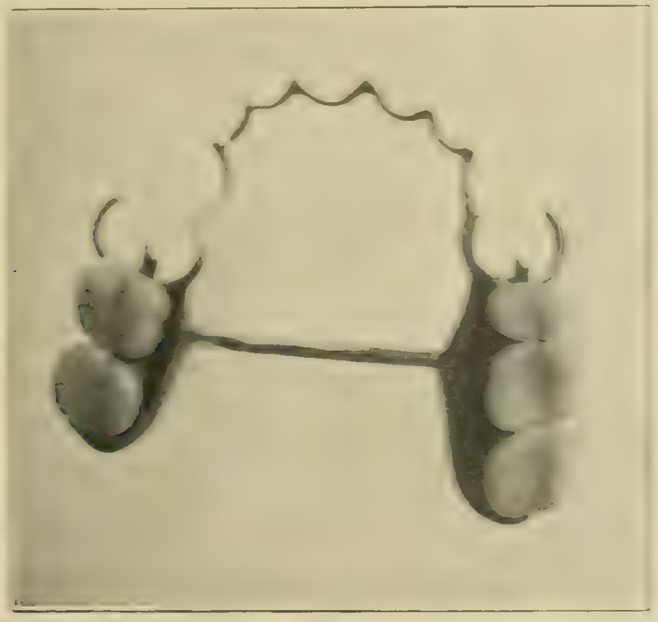

Fig. 12.

Slide No. 12 illustrates this particular scheme more perfectly, and is one which I feel is worth all the effort I have ever put into this method to develop it. It is a case which supplies the posterior teeth above on either side, and one which has always been, as you well know, very perplexing to deal with. Patients have been turned away simply because we felt too conscientious to destroy good teeth to place fixed bridges and permanent saddles. It involves the three essential factors in construction: the base wire, interdigitating wire and partial clasp. I may say this particular piece is worn by a patient who not a great while ago said she would not take a thousand dollars for it if she could not get one as good in return.

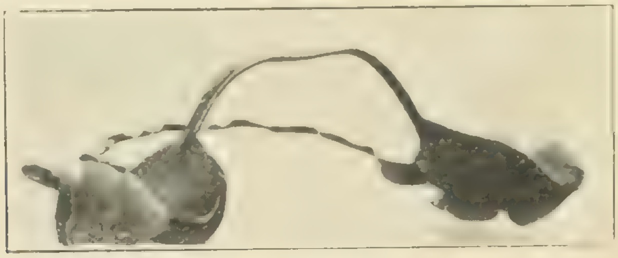

Fig. 13.

Slide No. 13 shows the same piece from another aspect, showing the manner in which the bar follows the roof of the mouth and also the relative line of the interdigitating wire which passes about the palatal portion of the anterior teeth.

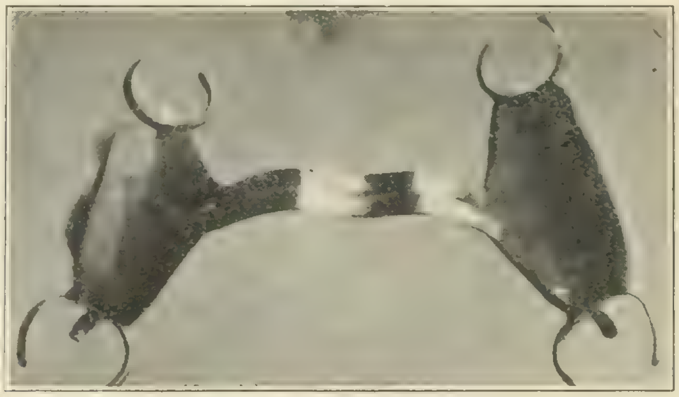

Fig. 14.

Slide No. 14 is another piece which illustrates what can be done with this work without the interdigitating wire where we have ample points for clasping, using the double bar of the clasp wire extending over the palatal surface of the mouth. This case, perhaps, might have been placed without uniting the lateral halves; however, I find that it is just as convenient for the patient to remove and take care of, and they are much more apt to give it proper attention.

QUESTION: Is that clasp attached to a central on the left side?

DR. BEACH: No, that I believe is a cuspid. However, it would be perfectly practicable to carry it to a central, and in that case the clasps are almost always made of round wire, being lighter. Very little support is used there, but when it comes forward to the central or the lateral, especially, I prefer the interdigitating wire because each tooth then adds its support, and there is practically very little clasping done to the central or lateral as the case may be.

QUESTION: What gauge is your wire across the palate?

DR. BEACH: That is gauge 12. It is the double bar, open at each side and united across the palatal portion.

QUESTION: Do you make that to lie against the tissues?

DR. BEACH: Not entirely against the tissues. It should be relieved relatively from the palate the thickness of tinfoil or a sheet of writing paper.

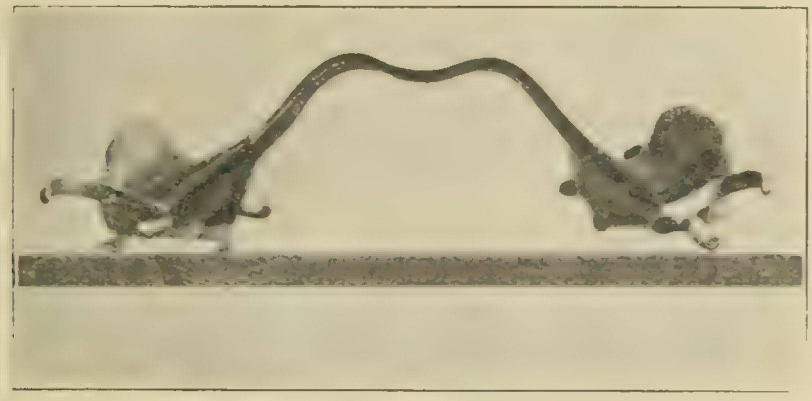

Fig. 15.

But a little care is all that is required there to construct the bar without having it impinge upon the soft tissues.

Slide No. 15 shows the same piece following the palatal surface, and is introduced just to give you an idea of its adaptation to the arch or dome of the mouth.

QUESTION: When you have your clasps and bar do you attach them all with solder?

DR. BEACH: When we are using rubber saddles the different parts are all fitted upon the model and rarely placed in the mouth until completed. In a majority of instances the clasps and bars are united by rubber.

QUESTION: When you get your clasps and bar all made, how do you hold them in position to get the impression? I refer to that last piece you had there.

DR. BEACH: There is no impression taken after they are adapted to the model. They are simply placed in position upon the model, and when flasked are held in place by plaster in the usual way.

THE PRESIDENT: I have very much pleasure in asking Dr. Cummer to lead the discussion on Dr. Beach's paper.

DISCUSSION.

DR. CUMMER: Mr. President and Members: Before beginning I would like to make a suggestion, and that is I think possibly the discussion might be carried along with greater simplicity by the members and by Dr. Beach himself if one or two of these representative slides were allowed to remain on the screen while the discussion was going on.

I would like to congratulate this Society on listening to this description of cases of Dr. Beach's. I think that would be the way he would like to have it referred to; and I would like to mention what naturally springs into one's mind on noticing these cases, and that is the comparison between those apparently sanitary and unobtrusive pieces of prosthesis as compared with some of these more or less clumsy rubber arrangements so frequently placed in the mouth, covering the gingival margins of all teeth and perhaps attached to them by clasps which are more or less apt to sink into the gum tissues with the well known consequences. In discussing prosthesis of this kind one naturally commends both, firstly, from the sanitary standpoint, and, secondly, from the mechanical standpoint. From the sanitary or hygienic standpoint (and we all know what a big place in dentistry that is occupying now), these appliances, it seems to me must appeal to everybody. They do not cover up the palate with vulcanite—Dr. Beach uses a wire in almost every case—a bar or wire covering the palate and joining the small saddles, as small as he can possibly get them; and the clasps he uses, I notice, are made in such a way they are kept above the gum margin, thus avoiding one of the frequent difficulties with clasps, by means of a little spur and the interdigitating wire to which he refers, which is intended, I believe, to add fixity to the appliance. While it (the interdigitating wire) appears, on the screen, to perhaps cut into the gum margin, Dr. Beach assures me that is not the case, that the interdigitating wire rests well above the gum margin, and as far as I am able to see does not interfere with the sanitary feature of the case at all.

Another point in the sanitary possibilities of this is, an unsanitary condition is very apt to be set up by undue strain placed upon the natural teeth. It seems to me this appliance has an advantage over some of the other appliances we are using, more particularly the Gilmore attachment, which rests upon the wire attached to the teeth, in not placing an undue strain upon the teeth. If any settling took place of those bars, I would judge it would be a simple matter to bend up those lingual wires. We all know, those who have used the Gilmore attachment, that is one of the great difficulties of those attachments, if we place it upon a ridge or alveolar tissue in which resorption takes place we very soon have a condition of the whole thing riding on those wires, and there is that undue strain being transferred to the teeth which results in the breaking of the wires or the loosening of the teeth, making it necessary to connect up those teeth carrying the Gilmore wire, with other adjacent teeth, resulting in a good deal of mutilation of tooth tissues. With this method it seems that it is not necessary to cut the tissue at all.

Now with regard to the mechanical efficiency of these appliances I think perhaps a word or two might be in order. The mechanical efficiency of the denture or the movable bridge depends, of course, to a very large extent upon the amount of grip which takes place between the clasp and the tooth itself. In the Roach attachment we have the split tube and ball. In the Gilmore we have the small clasp and fourteen gauge wire. We all know the grip is very positive, and in this I would imagine so, too. I see Dr. Beach uses half round wire, presumably for the additional pressure which may be exerted upon the side of a tooth, and uses it on both sides.

Another point which I do not think has come up yet that I would like to mention, and I would like to make it as pointed as possible, and with respect to the mechanical efficiency, is concerning the forms of the occlusal surfaces of these teeth. It appears to me in these cases that absolute accuracy of cusp form with respect to the condyle path and other anatomical features that have lately been brought so clearly before our minds, by Dr. Gipi and others, that it is important that absolute cusp formation should obtain in every case, because one can readily imagine the difficulty that could be caused by interference in the lateral movements of the jaw with cusps that are not properly formed, and consequent straining of the denture, the retaining teeth, and the soft tissue underneath.

Dr. Beach does not mention any of the other attachments that are perhaps better known to most of us than this that he has brought before us. I might mention the Gilmore and Roach attachments particularly. I think we are more familiar with those than perhaps any others. I presume he does not use them very much. I would like if we heard something along that line.

Another question I would like to ask in connection with it is, in using that same clasp, I have had a little difficulty with the spur sliding down the back of the tooth and opening the clasp and the denture settling, in other words, the spur not holding the clasp properly away from the gum margin.

Another case I would like to speak of before resuming my seat, and that is the bar of the lower, similar to that on the screen, only running from the lower first bicuspid on either side back in the form of two saddles and joined by the bar instead of the interdigitating wire there. I have met quite a number of those cases in using a flat clasp instead of the half round wire and without the interdigitating wire appliance, and have had no difficulty. I would like to know if he considers it necessary in every case to use that wire, for I presume the added efficiency is obtained by the use of the flat clasp, which immediately leads us to the point, why is it necessary to use a half round clasp in preference to the flat clasp, provided it is well kept away from the gingival margin. It appears to me a wider clasp than what is shown there would give sufficient stability to the piece without the interdigitating wire.

I must congratulate the Society upon listening to this able address. It opens up a field of discussion along one of the most difficult lines we have to deal with in prosthetic work, and one which is very much in harmony with the modern conception of oral prophylaxis.

THE PRESIDENT: Dr. McDonald, I regret to say, is not here, through illness. The subject is now thrown open for discussion. There must be numerous men here who have ideas on this particular work or have questions to ask. I would like you to give at least an enthusiastic discussion of this paper. We have a short time for it.

QUESTION: In case of absorption of the gum next to the clasp, what provision would be made by Dr. Beach where the absorption took place and the plate could not follow it?

QUESTION: That little tang that keeps the clasp from riding on the gum, when that is being made does that set into the tooth or rest on the outside?

DR. BEACH: Mr. President, I would like to add something regarding the wires used in this work. I forgot it at the time I was speaking, but I brought with me a sample of each. I want to also lay particular stress upon the copper-lined wire which I have had prepared. We all know the therapeutic action of copper upon tooth structure. This eliminates the necessity of using precautionary measures as a general rule, unless there is some other reason why the tooth should disintegrate about the clasp. The copper-lined wire will overcome all that trouble. Perhaps there are one or two features which we might name against its use, one being that the action of copper interferes with the spring of the metal, but very slightly, however, it being merely a very thin covering; also there is a much greater tendency to discoloration. The copper-lined wire is used generally at a point where it is immaterial whether it discolors or not. It is usually employed about the molars, and is entirely out of sight, but it polishes up immediately if the patient gives it that attention.

THE PRESIDENT: I will ask Dr. Beach to close the discussion.

DR. BEACH: I want to thank Dr. Cummer for his very charitable way of discussing this method, and I value his opinion very highly. I don't know of anyone I would rather have criticize my methods or comment upon them than Dr. Cummer, for I know he is thoroughly competent to do so, and his idea of the mechanical adjustment of these pieces in the mouth is better than my own.

He speaks of the care in the adjustment of these pieces. That is one of the principal features upon which success depends. It requires great care to adjust these pieces so that upon each tooth remaining in the arch, particularly the abutment teeth, the stress is equally distributed. In other words, not only the clasp teeth, but the teeth touched by the interdigitating wire form a certain support. Naturally the clasped teeth form the main support, and there is demanded a great deal of care to see that the adjustment is equal at every point.

Regarding the Roach, the Gilmore and other attachments which have been used, I do not care to enter into a discussion of them. They are superior in many cases, and this method is not advanced as a parallel or in a competitive way. This field is more or less distinctive, and personally I am a great believer in the preservation of the natural tooth in its God-given state, and that is the first thought that should enter our minds; can we preserve this tooth properly, can we continue it indefinitely in its usefulness? We should have that thought uppermost. One can destroy as well as preserve by this method; if the clasps are malattached, and the occlusion wrong, you will weaken the abutment teeth very quickly provided you throw all the strain upon them, and they will not stand up under it very long.

As to the occlusal rest sliding down. For instance, if the little tang or occlusal bar should slip from the surface of the tooth and allow the piece to rest heavily upon the gums and perhaps wedge in between the tooth and the other part of the clasp, which sometimes occurs, much damage to the soft tissues would result, but this is not probable provided care is taken to have the tang carried well forward upon the occlusal surface.

The little occlusal bar should be bent at right angles as nearly as possible. This usually can be done when treating molars and bicuspids, so that there is no opportunity for it to slide back. Always try and have a right angle bend at that point and let it rest rather on the forward tip of the clasp than on the heel as it were, so that it avoids that tendency. I have had in the early development of this work several instances where this has occurred, but we have overcome it in the manner just described.

Regarding the flat clasp instead of the interdigitating wire, no doubt that would overcome the tendency of the piece to raise at the heel, yet it brings more strain upon the abutment teeth than is really necessary, and the interdigitating wire is intended to equalize that stress, making it as uniform as possible and involving each tooth. That is the only distinction I can make between that method and this.

One gentleman has spoken of the resorption of the alveolus causing these pieces to settle and occasion trouble about the abutment teeth and also upon the palatal portion of the mouth over which the bar extends. I may say that it is possible to have trouble in that way; however, so little resorption takes place if the mouth is in proper shape to receive a piece of this sort, that it is hardly worth mentioning. But those little points have to be worked out in your own way, and I cannot give you any special suggestions.

Another gentleman has asked if the little occlusal rest fits the surface of the tooth or rests in the fissure. Ordinarily I find it perfectly feasible, in order to give sufficient accommodation for occlusion of the contacting tooth, to trim the occlusal surface where the little rest is to be placed, and carefully polish it. There is no reason why we cannot do this. If we restore the tooth to the same condition it was before we removed a slight portion at that point, we have done the case no harm whatever; and it is perfectly feasible and good practice to trim a contacting cusp so that it makes room for the little tang. The whole problem is merely to make the surface of the tooth so that it is capable of resisting decay. I frequently get space for the little rests in this way, and I believe without injury to the teeth, especially if they are properly treated with oxy-phosphate of copper or with the nitrate of silver.

One gentleman asked how the oxy-phosphate of copper is applied. It is mixed in the regular way and slight portions placed on the inside of the clasps as suggested.

DR. MCLAUGHLIN: I think the members of the convention would like to have an opportunity of expressing to Dr. Beach the satisfaction with which they have listened to his very practical address. We have all read in past years Dr. Beach's very rosy accounts in the journals with a good deal of appreciation, but the Doctor has shown this afternoon he can not only write upon the subject of dentistry, but that he can work out his results, and besides that he is not keeping the value of these things to himself. I know when the Programme Committee wrote to Dr. Beach and asked him to present this subject to this convention he was only too anxious to come, but his one particular point was this, that he wanted to present the subject in a way that would appeal to the members of the convention so that they would carry something practical away with them, and I think you will all agree Dr. Beach has succeeded in doing that. This kind of attachment, this way of replacing lost tissue and lost teeth—this method is becoming more and more in favor with the dental profession—getting away from the old style, and Dr. Beach has taken a very forward part in the progress in that direction.

We have owed a great deal in the past to the dental profession of the United States. Many a member from the country to the south has come to us and helped us out, and we are very glad to-day to add Dr. Beach's name to that list, to whom we owe a very great debt of gratitude. I very heartily move this vote of thanks.

DR. CUMMER: I can't allow this opportunity to pass without expressing my appreciation of what Dr. Beach has done, and I take very great pleasure in seconding this vote of thanks.

(The motion was carried with applause.)

Proceedings of Dental Societies

REPORT OF THE EDUCATIONAL COMMITTEE OF THE ONTARIO DENTAL SOCIETY

To the Members of the Ontario Dental Society:

At the annual meeting of the Ontario Dental Society held at Burlington, June, 1912, the following were elected as members of the executive of the Educational Committee: W. C. Trotter, W. H. Doherty, W. Seccombe, A. J. McDonagh, R. J. Reade. When the different sub-committees throughout Ontario meet and elect their officers, the chairman of each sub-committee becomes a member of the executive.

The committee beg leave to present the following report of their work during the past year:

On June 18, 1912, the members of the executive met in the Dental College Building, Toronto, and elected the following officers for the year: W. C. Trotter, Chairman; R. J. Reade, Secretary-Treasurer.

During the year eight meetings were held.

Every effort was made to assist the Educational Committees throughout the Province. These committees are doing very satisfactory work and their influence on the public has been largely felt. This year, as in the past, lantern slides and charts have been at the disposal of the various lecturers of the committees throughout the Province.

During the year just closed the following committees have taken an active part in the educational campaign: Toronto, Ottawa, Guelph, Stratford, Cornwall, Kincardine, Berlin, Gananoque and Georgetown. That these committees have faithfully performed their duties will be shown in the separate reports of each committee, found at the end of the general report.

The work initiated in the public schools of Toronto and carried on under the able inspectorship of Dr. W. H. Doherty is proving a great boon to the children. As a result of this inspection it necessarily followed that there should be established a free dental clinic to look after the interests of those who could not afford to pay for the dental work which they should have done. The Toronto committee made strenuous efforts to establish a free dental clinic. This was finally accomplished by the co-operation of the Medical Health Department, under Dr. Chas. J. C. O. Hastings, so at present the dental inspector of the public schools and the nurses select those cases which need attention and send them to the Free Civic Dental Clinic. This clinic is in charge of Dr. J. A. Bothwell, Toronto.

Besides this free dental clinic under the control of the Medical Health Department of the city, there has also been established three free dental clinics in the public schools. These are under the control, not of the Civic Health Department, but of the Medical Department of the Board of Education. The reason for establishing these clinics to be held in the public schools is that the city is so large and the outlying schools are so far from the centre, that too much time would be consumed in going to and returning from the central clinic. Therefore, the school clinics are in widely separated districts. The school clinics are under the supervision of Dr. W. H. Doherty, and manned by dentists in the service of the Board of Education.

Your committee are still able to supply the sub-committees with the Dental Exhibit Charts. These charts have proved of value to lecturers, and this year, as last, inquiries have been received from many parts in the States, namely, from Portland, Maine; Galesburg, Ill.; Saranac Lake, N.Y., and Everett, Mass.

Your committee has had published by the Ontario Department of Agriculture a pamphlet, which it had in hand at the last meeting of the Ontario Dental Society. Your committee asked Dr. A. Stewart to prepare the pamphlet, and it has been issued under the title of Bulletin 204, "Decay of the Teeth, Its Cause and Prevention." As many of the society are aware, many thousands of copies of this pamphlet have been printed. These are sent to the dentists of the Province, to teachers, to Women's Institutes, and other societies which are on the mailing list of the Agricultural Department. The pamphlet has been highly commended, and much good has resulted from its publication. The Department of Agriculture have a number of copies on hand and will be glad to supply them to dentists who will write to ask for them.

At the last meeting of the Ontario Dental Society the Educational Committee was asked to make arrangement to have a convention in Toronto of the chairmen of all the sub-committees to discuss the work. On November 12, 1912, such a convention was called. Dr. F. E. Bennett, St. Thomas, and Dr. J .A. Bothwell, Stratford, were present, as well as a large number of the Toronto committee. The meeting was very successful and productive of much information. If the convention becomes a yearly affair, as it should, the chairmen of the different committees will know more about it, and a larger convention may be expected.

The following extract from the minutes of the Ottawa Educational Committee was received by your committee: "Moved by Dr. Juvet, seconded by Dr. Lacy, that our delegate to the meeting of the Ontario Educational Committee in Toronto be requested to place before the committee the advisability of changing the name of that committee to that of the Ontario Oral Hygiene Committee. Carried." Your executive are of the opinion that this change of name is desirable and submit it for your confirmation.

Arrangements have been made with Dr. J. W. S. McCullough, Chief Officer of Health for the Province of Ontario, to publish a bulletin on some educational dental subject, and to issue twenty-five thousand copies of the same.

Arrangements have been made to take charge of press notices for the daily press.

Your committee again interviewed the Hon. Mr. Hanna regarding the "Dental Care of Inmates of Provincial Institutes." While Mr. Hanna was in favor of the scheme, yet he did not make any definite promises regarding it, but promised that he would give it his consideration. Next year your committee should again interview the Hon. Mr. Hanna.

Your committee beg leave to recommend to the Ontario Dental Society the appointment of a Commission on "Dental Research."

W. C. TROTTER, Chairman.
R. J. READE, Secretary.

REPORT TORONTO EDUCATIONAL COMMITTEE.

Committee: Drs. W. H. Doherty, H. E. Eaton, A. E. Webster, R. G. McLaughlin, Wallace Seccombe, Arthur Black, A. J. McDonagh, J. A. Bothwell, Angus Kennedy, Fred Conboy, R. J. Reade.

Officers: R. G. McLaughlin, Chairman; J. A. Bothwell, Secretary; A. E. Webster, Treasurer.

At the inaugural meeting it was decided to confine the work of the year to the hospitals, schools and the municipal clinic.

The committees were struck accordingly:

HOSPITAL WORK.

Committee: Dr. McDonagh, Chairman; Drs. Husband, Webster and Bothwell.

This committee undertook to follow up the work of previous years, namely, arranging for lectures to nurses in training in all the larger hospitals of the city, and also in similar institutions. Also an effort was made to place the dental clinic of the Toronto General Hospital on a better footing.

CITY SCHOOL WORK.

Committee: Dr. H. E. Eaton, Chairman; Drs. Kennedy and Conboy.

The principal work of this committee was the arranging of lectures on oral hygiene in the different schools of the city, other than the public schools which were being looked after by the dental inspector. These lectures have been well received wherever introduced.

PUBLIC CLINIC.

Committee: Dr. W. H. Doherty, Chairman; Drs. Black, Seccombe, Webster, Reade, Bothwell and McLaughlin.

The main effort of not only this sub-committee, but of the whole Educational Committee was brought to bear on the final arrangement in establishing this clinic for the poor children of the city.

The Medical Health Department moved slowly and cautiously in the matter, and it was not till the month of February of this year that the clinic was in running order.

Suitable rooms were rented on the corner of Yonge and Grenville Sts.

The equipment, which is modern in every detail, makes up a 3-chair clinic.

The educational Committee installed the principal part of the equipment at a total cost of $850.00; $500.00 of this was generously subscribed by Sir Edmund Osler. The balance of $350.00 was given by the Toronto dentists.

During the past winter some six lectures on oral hygiene were given to mothers' meetings, held in connection with the "Down Town Church Workers' Association" of the Anglican Church.

At the final meeting of the committee a resolution was passed endorsing the action of the Ontario Education Committee in asking the Ontario Dental Society at its next meeting to appoint a committee on "Dental Research."

R. G. MCLAUGHLIN, Chairman.
J. A. BOTHWELL, Secretary.

GEORGETOWN EDUCATIONAL COMMITTEE.

The Georgetown Educational Committee report that three lectures have been given. One to the Women's Institute, and two in different churches. There was also one put in the local paper on "The Teeth and Their Care." We hope to use the Dental Exhibit Cards in the schools, and have spoken to both principals. It may be difficult to make arrangements for this term, as all grades are very busy.

F. R. WATSON, Chairman.
L. L. BENNETT, Secretary.

GANANOQUE EDUCATIONAL COMMITTEE.

This committee was late in being formed. But the committee has been brought together and is well officered. The committee report that they have a lantern now, and when they receive the Dental Exhibit Charts all will be in readiness for the work. A report is promised for next year.

H. A. PARKER, Chairman.
A. H. MABEE, Secretary.

CORNWALL EDUCATIONAL COMMITTEE.

The local committee has pursued the same policy as last year and is helped materially by the set of Dental Exhibit Charts, which has proven invaluable in our work. We propose placing a set of these charts in each of our public schools, the consent of the Boards having been obtained. Literature has been distributed in the schools, convents and hospitals.

W. B. Cavanagh, Chairman.
A. A. Smith, Secretary.

Ottawa Educational Committee.

The Ottawa Committee has done some valuable work during the past year. The children attending the Elgin and George Street schools were examined with the permission of the Public School Board.

The report reads in part:

"In summing up the results one cannot but realize how bad conditions would be if it were possible to obtain information concerning the conditions of the teeth of the children in all the schools of the city.

"The results obtained from the examinations just concluded in two schools manifest an existing condition which can be improved, and we would expect to find as good, if not better conditions in these schools than in many other schools in the city.

"We find that of 183 pupils of from five to eight years of age there were five permanent teeth lost and 217 defective and 22 filled. When you take into consideration that these teeth had not been in position in these mouths for more than one-half year and some for much shorter time, and there are 217 defective teeth that need filling and restoring to normal condition in order that they may properly perform their proper function in thoroughly masticating the food.

"One cannot but realize the necessity of pointing out to the parents the advantage of having the teeth of their children put into proper condition so as to better insure the proper and normal development of the child.

"We as a body of men have carefully studied the conditions and realize the benefit that can be obtained by adopting some means of bettering the oral conditions of the pupils attending the schools, and therefore do not hesitate to recommend the adoption of dental inspection in our public schools as a step in the right direction.

"Number of pupils examined in the two schools from five to eight years old, 183, presenting five permanent teeth lost, 217 permanent teeth defective and 22 filled. One permanent molar was lost, 171 defective, 18 filled and 52 with pus exuding into the mouth and 17 manifesting pain. One hundred and forty-five children had regular teeth, 12 had markedly irregular and 28 slightly so. Ninety-four had good masticating apparatus, 64 fair and 25 poor. One hundred had clean mouth, 72 fair and 11 unclean. The total number of permanent teeth defective was 217 and the total temporary teeth was 951.

"The number of children eight years old and upwards was 397, and the examination presented 185 permanent teeth lost, 869 defective and 497 filled. First molars lost 139, defective 490, filled 283, exuding pus into the mouth 60, and 50 giving pain. Two hundred and ninety-eight children had regular teeth, 143 markedly irregular and 66 slightly irregular. Two hundred and eighty-three children had good masticating apparatus, 78 fair and 23 poor. Two hundred and sixty-two had clean mouths, 75 fair and 22 with unclean. Total permanent teeth defective 869, temporary teeth 345.

"Regarding the result shown by the inspection, while it shows the necessity of further attention to oral hygiene in comparison with the published results of similar inspection in other cities, both in the United States and in Canada, we think that the conditions are markedly superior to the conditions in other cities. The reasons appear to be these: In Ottawa we have no real slum population; poor there are, but not in the sense in which they exist in many centres of population.

"The Elgin Street school, for instance, houses children of a self-supporting, self-respecting and highly intelligent class of citizens, to whom proper medical and dental services are a recognized necessity, consequently the conditions found there were of the best. Even in the George Street school, where the majority of the pupils are of foreign extraction, they were of the European peasant class, mostly healthy and not marked by the evidences of degeneration which are so marked in the children from the large European cities.

"The children were for the most part clean, bright and healthy, giving promise of future good citizenship. We met with no difficulties in the inspection, and in two cases only were letters received excusing the pupils from inspection. In regard to these cases we feel that they arose purely from misconception of the scope and objects of the inspection."

OLIVER MARTIN, Chairman.
M. G. McELHINNEY, Secretary.

STRATFORD EDUCATIONAL COMMITTEE.

At a meeting of our association, held in September, 1912, it was decided to carry on the work undertaken in previous years. As a result of this decision, Dr. A. A. McKenzie was appointed to address the Normal students, and Dr. H. W. Baker has undertaken similar work at the Stratford General Hospital. This work, I believe, has been successfully completed.

Miss Loney (the head public school nurse) continues to make school inspections with favorable results, which for February and March are practically as follows:

130 children had teeth filled.

17 children had glasses fitted.

8 cases of adenoids were operated on.

12 patients had tonsils removed.

Miss Loney recommended to the Public School Board that tooth brushes be supplied to families in poor circumstances, and this will probably be acted upon.

The nurse reports a marked improvement in the care of the teeth at this inspection.

A. E. AHRENS, Chairman.
D. R. NETHERCOTT, Secretary.

GUELPH EDUCATIONAL COMMITTEE.

Since last year's report we have made a move in the direction of dental inspection in schools here, insomuch that the Board of Education and the people are interested. One of our members interviewed the Board of Education last fall and got permission to examine the children in the schools and make a report thereon. The result was that Dr. D. F. Foster volunteered to take his part of the work, and gave much time in examination of the children, to the number of about five hundred, and gave a complete and full report of the work done at the last meeting of the Board of Education, of which both he and myself are members this year. The result of this work has been that five hundred dollars has been set aside for the purpose of making a start in medical inspection, and the probabilities are that within the next year or so a nurse may be appointed to begin the work.

Other members of the Dental Committee here have done some work in the way of lectures.

Dr. M. J. Rudell lectured, using charts, to the workingmen in some of the factories at the noon-hour with a much appreciated effect. I have given a course of lectures and examination to the graduating class of nurses at the hospital (St. Joseph's). I also gave a lecture to a meeting of the mothers at the Consolidated School, which has produced excellent results,

We hope in the near future to do more work along these lines, as every move seems to be looked for and appreciated by the people in general.

I hope to be able to report something definite in the way of school inspection next time.

D. M. FOSTER, Chairman.
F. T. COGHLAN, Secretary.

ELGIN EDUCATIONAL COMMITTEE.

The Elgin Educational Committee have shown some activity since the last report; still our efforts in this direction have been much appreciated by the public as well as school educationalists.

The committee were fortunate in securing, through the kindness of the Canadian Oral Prophylactic Association, the loan of a moving picture film entitled "Toothache," which was presented to the public by the management of the Princess Theatre, during one week in the month of April. This film was the first of its kind presented to the public in this city, and was fully appreciated by the large audiences who are beginning to recognize the importance of their teeth.

Dr. F. E. Bennett, president of the committee, has been active in giving a number of illustrative talks to a number of local organizations.

I may state, also, that I have compiled, and there is now on the press, a public school map chart on dental and oral hygiene, which will be of assistance in the teaching of this important subject.

F. E. BENNETT, President.
T. C. TRIGGER, Secretary.

BERLIN EDUCATIONAL COMMITTEE.

The educational work of the district has been progressing favorably.

Under the auspices of the Women's Canadian Club, Dr. McDonagh lectured on "Oral Hygiene" and exhibited Dr. Hunt's motion pictures, which made a favorable impression on all.

A start will be made in the schools this fall.

A. E. RUDELL, Chairman.
L. K. KOEPPEL, Secretary.

FINANCIAL STATEMENT.

RECEIPTS.

Balance last Statement	$ 3.94
Cheque from the Ontario Dental Society	100.00
Bank Interest	2.25
Sale of Dental Exhibit	22.50
Cheque from Dr. F. D. Price, Dental Hygiene Convention	8.10
	$136.79

DISBURSEMENTS.

Stationery, Postage and Sundries	$ 7.10
Express Charges	8.00
Bank Exchange	.30
Thos. B. Jones—Packing Dental Exhibit	3.00
R. J. Reade—Loan Returned	15.00
W. R. Maxwell & Co.—Printing	17.95
Firstbrook Box Co—Cases for Dental Exhibit	10.75
Travelling Expenses of Delegates to Ex. Convention	8.10
Cash on hand	.96
Bank Balance	65.63
	$136.79

ASSETS OF COMMITTEE.

Dr. F. R. Thomas, Harrisonburg, Va., owing for Charts	$ 4.00

Dr. E. W. Belcher, Rochester, N.Y., owing for Charts	3.50
Exhibits not disposed of at $3.50 per set	84.00
	$ 91.50

R. J. READE, Secretary-Treasurer.

DISCUSSION.

F. E. BENNETT, D.D.S., ST. THOMAS, ONT.

Mr. Chairman and Gentlemen:

The splendid report of the Educational Committee of the O. D. S. was not handed me until a late hour last evening, so you will kindly pardon me for my very incomplete discussion of this vital issue. I will deal principally with the question from a school standpoint. Looking over the report of the different committees I find that the majority of the larger cities and towns have no organization whatever. This seems regrettable when so much of the health and prosperity of the community depends upon the conditions of the oral cavity. Let us quote an extract from the St. Thomas papers on the report of the film "Toothache," which we had shown in one of the nickle theatres for a week a short time ago under the auspices of the Elgin Dental Society.

Especially interesting are those parts of the film showing a class taking lessons in the use of the tooth brush, the rinsing of the mouth, gargling and mastication. These parts of the film alone are full of interest and of real practical education, and there is no child in St. Thomas that will not have a better conception of the need of a clean mouth and the proper way to obtain it after seeing the pictures. Parents, guardians and teachers should unite in an effort to ensure their boys and girls of the undoubted educational advantages offered by the Dental Association's enterprise in securing for St. Thomas the first exhibition in Canada of this film produced under the auspices of the Canadian Oral Prophylactic Association.

School Inspector Taylor was greatly pleased with the film and classed it as one of the best educational ideas that he had seen. Mr. Taylor has for a long time favored dental inspection in the city schools, but so far without success, and under the circumstances he considers the film a splendid method of bringing about, at least partially, the good results that he is convinced would follow the proper examination of the mouth of each child in St. Thomas.

And Inspector Taylor knows what he is talking about. He sees the bad results of defective teeth on the health of the pupils under his inspectorate, and consequently the great handicap under which they are laboring. And yet so many of us who know the importance of a healthy mouth sit back in perfect indifference to this serious condition of affairs.

That brings me back to Dr. Hunt's paper, "Are we not our brothers' keeper."

However, I note with satisfaction that the Educational Movement is rapidly growing, and before long we will all awaken to the fact that the seemingly unrewarded efforts of the few have borne fruit 100 fold. We have a peculiar situation in St. Thomas, "the city that does things." We have 3 dentists and 2 physicians on the school board, and if we advocate medicine or dental inspection you would see the word "graft" painted in big loud colors coming from countless mouths. Isn't that a regrettable ignorance on the greater part of the people, but it's a fact, and we must educate the masses. The point which I wish to bring out is that the demand for inspection should come from men outside the profession, men who are leaders of men. As a profession we should advise and aid these leaders.

Just here let me say a word regarding the film shown last night. By all means secure it for your town or city if you have a moving picture theatre. The owner of the theatre will only be too glad to show it, and the results for good cannot be over estimated. If you wish me to tell of the E. D. S. experience with the picture I will do so in the general discussion as I have not included it in my report. For the benefit of the Chairman of the sub-committee of the Education Executive for 1913-14 be sure to meet again this fall as did the 12-13 committee. We hope the O. D. S. will make an appointment as they did last year. As Dr. Reade has stated the meeting was very successful and productive of much information. Get together and form your plans for the winter campaign. There are many other points in the excellent report which I hope will be brought out with general discussion.

THE PRESIDENT: Dr. McLaughlin will now follow Dr. Bennett with a report on some of the work that is being done in the hospitals.

DR. McLAUGHLIN: Mr. Chairman, I am sure we all wish Dr. Juvet, of Ottawa, were here to tell us something of the work he did in Ottawa, because those of us who have been in touch with the work throughout the Province know that Ottawa has been on the brink of making a plunge for more than a year. They were fearful of taking that plunge, but they did so in the early part of this winter. I believe they have met with a good deal of success, and I am only sorry for your sakes Dr. Juvet is not here to tell us how they did the work and how much they have succeeded. But, I suppose what is in the mind of a good many people in Ontario to-day in connection with this work, especially from the outside districts, is this, if we want to introduce this work in our town or city how are we to go about it. That was the great question the Ottawa people sent up to Toronto; in fact, they went so far as to ask our Dental

Inspector, Dr. Doherty, to go down and help them initiate the work in that city. Dr. Doherty did not go, but gave them all the information he could and they got along very well on their own initiative. From our experience in Toronto, if you want to introduce the work as far as the hospitals are concerned, the first thing you will think of is the training of the nurses in that particular hospital and the giving of the particular lectures in oral hygiene to that class of graduating nurses. If you want to get the nurses in the hospitals interested get hold of the Superintendent of the nurses. If she is an up-to-date individual, as most of them no doubt are, she will listen to your story and she will be interested, if you let her know, as you ought to do, that the graduate nurse who understands and appreciates the value of a clean mouth for her patient and the value of it, especially in the convalescent period, and that that nurse with that knowledge takes a higher standing in the household than the nurse that has not that knowledge, she will see to that and will be all too anxious to have the lectures in oral hygiene given to that graduating class.

In Toronto wherever these lectures are given they are very much appreciated, and they are given in all the large hospitals of this city. Not only that but after the lectures are given there is an examination, and that examination counts on the graduation of that nurse. In fact if the nurse is plucked in the examination on oral hygiene she does not graduate until she passes such examination. That is the case in the hospitals I have something to do with in these lectures. In connection with the General Hospital and the Sick Children's Hospital, which Dr. Mason and Dr. Bothwell were here in connection with, the main idea is to have a dentist attached to the hospital staff so that all conditions pertaining to the oral cavity can be referred to the attached dentist, which is, perhaps, a more difficult question, a more difficult problem to deal with than the introducing of the lectures to the graduating nurses.

Just one word in connection with the school. Dr. Bennett has taken up that matter, but as far as introducing the work into the schools of the towns or cities concerned, the same process very much must be followed. That is, you must interest the School Board, and how are you going to do it? The way it was done in Toronto was this, in a word, permission was gained from the Inspectors and School Board to examine the children in two of the schools of the City. The result when presented to the members of the School Board in a very plain and practical way was so striking and so appalling to them that there was only one opinion, and that was that something should be done to alleviate the condition that prevailed at that time in the schools. One thing we showed them was this, that, I think it was, forty per cent. of the children in those schools were suffering from toothache at the time of the examination, and the teachers know and appreciate, and the Trustees know that pupils suffering from toothache simply are useless as far as following the course of study is concerned.

If you can show them half a dozen other things just as striking as that you will have no difficulty in initiating the work in the schools. There was very little difficulty after that in initiating the work in the schools of Toronto.

I hope with Dr. Bennett, there will be another and a larger convention or conference of the district representatives in Toronto or in some other centre during this coming year in order that the work throughout the Province might be unified.

There is another part of this report in reference to the appointment of a commission on dental research that I think I would like to hear discussed here because it is a new movement and one that we want to hear something about.

THE PRESIDENT: Gentlemen, is there any one who would like to discuss the report?

DR. DOHERTY: There is a slight error in the report to which I should possibly have drawn attention. On page 4 it is stated: "There has also been established three free dental clinics in connection with the public schools." That "three" should be "four."

DR. BENNETT: On page one of the report you might also insert the name "St. Thomas" among the Cities.

THE PRESIDENT: Dr. Seccombe, have you anything to say with regard to this report?

DR. SECCOMBE: Mr. President and Gentlemen, I have nothing particular to say in regard to the report. It does seem too bad, however, that this suggestion with regard to the appointment of a committee on dental research should pass without some comment. I had hoped that that might be accomplished at this convention, and that the work of that commission will be to organize research work very much as the oral hygiene work has been organized in the Province, to the end that all the local societies may have research committees, and that certain work be delegated to these committees so that from year to year we shall have a comprehensive review of the research work which is being undertaken in the different sections of the Province. Personally I would feel sorry if a commission should be appointed of such a character that this work would be undertaken only in one section or one part of the Province. It would be advisable, I think, to endeavor, if possible, to organize this research work so that the work would be undertaken in all the different societies of the Province and in that way get all the men interested in this work which is so very important.

THE PRESIDENT: Is there any further discussion, gentlemen? Do you wish to make a motion in regard to the research commission?

DR. WILLMOTT: The report is adopted.

THE PRESIDENT: Has any definite action been arranged for in regard to it?

DR. WILLMOTT: The Nominating Committee has a commission ready to name.

DR. MCLAUGHLIN: Is it the wish of the Convention that the appropriation of $50 be continued.

DR. WILLMOTT read resolution re Executive Committee, which on a vote having been taken, was carried.

DR. WILLMOTT: I move that a grant of $100 be paid to the oral hygiene committee for the ensuing year.

DR. ELLIS: I move an amendment that the grant be $150 instead of $100. I don't think we should be stingy in this work, and though we would not want the Committee to become extravagant, yet the work is getting very heavy now and they need money to carry the work on. As far as the finances of the Society are concerned I believe there is a balance of some $280 from last year, and the Exhibit Committee are turning in a net profit of something like $250 this year, and I believe there are about 250 men registered, which means another $500. That makes nearly a thousand dollars. I don't think the expenses of this convention this year will be——

THE PRESIDENT: Until you have support to your motion we can't very well discuss it.

DR. ELLIS: I believe we could easily grant $200 and never feel it.

DR. BOTHWELL seconded Dr. Ellis's motion.

DR. WILLMOTT: I don't want to divide the house on this, and if it is the will of the meeting I will withdraw my motion in favor of the amendment.

DR. KENNEDY: As far as I can see the Committee themselves—there are three of them here—say they don't necessarily need so much money as that this year. The Committee evidently have asked Dr. Willmott to make that motion, and it was evidently with the consent of the Committee, and if that is so I don't see why we should put more money on it.

THE PRESIDENT: Is that favorable to you, that the Committee really do not desire more than $100?

DR. READE: You have only got Dr. Kennedy's word that the Committee doesn't desire the money. It should be that Dr. Kennedy says so. If we are to do the work, more than we have been doing, we should have more money. Previous to this we have a $200 grant and $100 came from the Royal College of Dental Surgeons School, and the work we are doing is along the line of helping them. There was an objection raised and that sum was taken from us, and we had to curtail in doing certain things we desired to do. In the first place if we had not had that sum we never could have got the dental charts we have and been able to send them to all our committees. So that we can go along but only according as we have means to do the work with. It must not be understood that the Committee thinks that $100 is sufficient for the best work that can be done by the Committee. It is not so.

THE PRESIDENT put Dr. Ellis' motion which, on a vote having been taken, was declared carried.

DR. WILLMOTT: Regarding the motion I made a few moments ago with reference to the meeting of the Executive Committee I suggested that the meeting would be better held during the Flower Show. I would like to change that motion with the permission of the house, that the Executive Committee be convened at the call of the chair, instead of during Exhibition Week.

THE PRESIDENT calls for the report of the Nominating Committee.

DR. SECCOMBE: If this is the final order of business, there is one report that does not appear on the programme that should be received, and that is the report of the Brodie Memorial Fund. Dr. Eaton, who is Treasurer of the Committee, is present, and if you wish to receive all the reports together I think we might receive that before we have the final report.

THE PRESIDENT: That reminds me. Should anything be done in regard to the Hygienic Congress to be held in Buffalo? Should a delegate or delegates be appointed for that Congress? In talking with Dr. Beach I believe there was nothing official with regard to any appointment, but if a delegate or party of delegates were appointed to the Congress he said he would see they would receive the recognition which the other delegations received at the time.

DR. WEBSTER: I believe it would be quite a proper thing that we should appoint delegates, and I would move that the chair at its pleasure and discretion, when opportunity arises, name a committee of three delegates from the Province of Ontario to attend this Congress.

DR. WILLMOTT: Expenses paid?

DR. WEBSTER: I didn't say anything about that; but that they be the Official Delegates of the Ontario Dental Society.

DR. MCLAUGHLIN: I will second that motion if Dr. Webster will consent to modify it a little, that the Chair, in conference with the oral Hygiene Committee of Ontario appoint three delegates. That is for this reason, perhaps, the Chair might nominate three men and two of them could not go. If the Chairman would consult the Oral Hygiene Committee they might be able to suggest the appointment of three men, all three of whom would go, and we would have as many men from this Society to attend that Congress in Buffalo as possible. I think the opinion over there is at some of the Society meetings that we in Ontario are not as much interested in their meetings as they are in our meetings; we don't want that feeling to go abroad there.

Dr. Webster: That was my idea, that the Chair should appoint the Committee and that he would find out who were going and appoint them.

The President put the motion, which on a vote having been taken, was declared carried.

Dr. Webster: I think the Secretary of the Society ought to give the necessary credentials to each man going.

The President: Yes.

The President called on Dr. Eaton to report with reference to the Brodie Memorial Fund.

Dr. Eaton: About two years ago there was a committee appointed to raise an amount to procure a picture or painting of Dr. Brodie to be hung in the Dental College. The Committee was composed of Dr. Corrigan (Strathroy), Dr. Seccombe, Dr. Webster, Dr. Bothwell and myself. He worked pretty hard and steadily at this. Notices have been inserted in the Dental Journals and announcements have been made at the different meetings, and yet the response has been very small. We have raised in all $75. The total amount of the bills in connection with the painting and framing of the picture is $180.55. After the meeting last spring we were asked to go on with the work and do the best we could with it. A good many of us who had contributed before, contributed again—increased our subscription, but some how or other the subject does not seem to be very popular with the average dentist, I suppose on account of Dr. Brodie not being very closely identified with the dental profession, not as closely as he was with other lines of work—scientific work. I wish to say that your committee has been approached by Mr. Thompson, of the Toronto University, with the suggestion that they combine with us and pay the balance of the uncollected amount, and instead of the picture being hung in the Dental College here, where it does not seem to be appreciated, that it be hung in the Provincial Museum. That, if it pleases the meeting to make that arrangement with them, will clear the matter up and this subject will not appear again. I move that this offer be accepted.

Dr. Reade: I think it would be a shame to take the picture of such a man out of the College halls. It is not every year we have a man of such distinction in our line. The trouble, I think, with the Brodie Memorial Fund was this, that the Committee started out and said no one was to give more than $2. That injured it considerably, because generally there are some who give a larger sum, and that helps to make up the full amount. But, I think either some of those more inclined to give money in the profession should be asked for it; or better still, I don't see why the Ontario Society should not do it and present it to the Royal College of Dental Surgeons.

The President: Will you make a motion, Dr. Reade?

DR. READE: If I am within my rights I would move that the Ontario Dental Society make up the deficiency required for Dr. Brodie's portrait, and then make a presentation of it to the Royal College of Dental Surgeons.

DR. BENNETT: I take great pleasure in seconding that.

DR. HUSBAND: I second Dr. Eaton's motion. Personally I feel this way about Dr. Brodie. I think he was not on outstanding dentist, and for that reason alone, I don't think there is any call for us to hang his portrait in the hall of the College. If the portrait has been made the suitable place to hang it would be in a place where he was outstanding in his particular line of work.

The President put Dr. Reade's motion, which, on a vote having been taken, was declared lost.

The President then put Dr. Eaton's motion, that the matter be handed over to the University, with the amount that has been subscribed, and that the picture then be hung in the University, the place in which Dr. Brodie made his reputation, which on a vote having been taken, was declared carried.

DR. WEBSTER: Mr. President, I rise to move for reconsideration. I really think that the money collected from the dentists in connection with the Brodie Memorial was on the understanding that that picture was to be hung on the walls of the College, and it is not quite keeping faith with those who paid in their money to have it sent out of the College. Now, if the Society thinks well of it, and I succeed in getting a seconder for my motion, then we may reconsider it.

THE PRESIDENT: Dr. Webster has given sufficient reason for reconsideration of the motion that was passed a moment ago.

DR. WEBSTER'S motion was seconded by Dr. Kennedy.

DR. HUSBAND: I think it is in order for one of the majority to move the reconsideration, and I think Dr. Eaton is agreeable to that.

THE PRESIDENT: Is it your pleasure that this motion be reconsidered? Dr. Eaton and Dr. Husband are agreeable.

(Assent was given to the reconsideration of the motion.)

THE PRESIDENT: The question is now open for reconsideration as to whether this picture shall hang in the College or in the University or what shall be done with the amount which has been subscribed.

DR. WEBSTER: I move we rescind the former motion.

DR. MARSHALL: I have much pleasure in seconding that motion because I think it is a shame that the picture should be removed from the walls of the College, and as Dr. Webster said, the gentlemen contributed with the understanding the picture was to hang in the College. The President put the motion to rescind, which, on a vote having been taken, was declared carried.

DR. EATON moved, seconded by Dr. Seccombs, that the Society make up the balance of the amount required to pay for the portrait, which amounts roughly speaking, to $105.55. Carried.

THE PRESIDENT: Is there any other business?

DR. MCLAUGHLIN: I would suggest—I don't think it is necessary for a motion—that the Secretary, as soon after the convention is over as possible write the District Representatives specially of their appointment drawing attention to their duties so that the programme committee of next year will not be up against some of the difficulties that the programme committee of this year were up against. I think some of the representatives of the districts did not understand this year that they were the representatives of those districts. Now, I think we should put that matter before them for next year.

THE PRESIDENT: It will be necessary for the new Secretary of the Society to do that. The Secretary of the Programme Committee will not be appointed for some time. Will you make that a motion?

Dr. McLaughlin so moved, seconded by Dr. Webster, and the motion was adopted.

EDUCATIONAL COMMITTEES.

Executive Committee.—Dr. W. C. Trotter, Toronto, Chairman; Dr. R. J. Reade, Toronto, Secretary-Treasurer; Drs. A. J. McDonagh, Toronto; W. H. Doherty, Toronto; W. Seccombe, Toronto; R. G. McLaughlin, Toronto; D. M. Foster, Guelph; A. E. Ruddell, Berlin; H. A. Parker, Gananoque; W. B. Cavanagh, Cornwall; W. J. Bruce, Kincardine; Oliver Martin, Ottawa; A. E. Ahrens, Stratford; F. R. Watson, Georgetown; F. E. Bennett, St. Thomas.

Berlin Educational Committee.—Dr. A. E. Rudell, Chairman; Dr. L. A. Koepell, Secretary.

Cornwall Educational Committee.—Dr. W. B. Cavanagh, Chairman; Dr. A. A. Smith, Secretary; Drs. O. L. Weaver, W. D. Knight, J. A. Liddell.

Elgin Educational Committee.—Dr. F. E. Bennett, St. Thomas, Chairman; Dr. T. C. Trigger, St. Thomas, Secretary; Dr. C. C. Lumley.

Gananoque Educational Committee.—Dr. H. A. Parker, Chairman; Dr. J. H. Mabee, Secretary; Dr. J. A. Black.

Georgetown Educational Committee.—Dr. F. R. Watson, Chairman; Drs. L. L. Bennett, Heath.

Guelph Educational Committee.—Dr. D. M. Foster, Chairman; Dr. F. T. Coghlan, Secretary.

Ottawa Educational Committee.—Dr. Oliver Martin, Chairman; Dr. M. G. McElhinney, Secretary; Drs. L. E. Stanley, C. H. Juvet, W. C. McCartney, A. E. McCordick, M. F. Cross, W. R. Green, J. J. Lacey, W. A. Leggo.

Stratford Educational Committee.—Dr. A. E. Ahrens, Chairman; Dr. D. R. Nethercott, Secretary; Dr. S. B. Gray.

Toronto Educational Committee.—Dr. R. G. McLaughlin, Chairman; Dr. J. A. Bothwell, Secretary; Drs. C. A. Kennedy, W. H. Doherty, F. J. Conboy, Wallace Seccombe, A. D. A. Mason, Horace Eaton, R. J. Reade, A. E. Webster.

CENTRAL ONTARIO DENTAL SOCIETY.

Reported by H. N. Wilkinson, D.D.S., Secty., Newmarket, Ont.

The annual meeting of the Central Ontario Dental Society was held on June 27th, at the Hotel Mossop. After partaking of a sumptuous banquet provided through the kindness of the Temple-Pattison Co., the following officers were elected: Pres., Dr. W. Adams, Whitby; Vice-Pres., Dr. E. S. Barker, Stouffville; Secy.-Treas., Dr. H. N. Wilkinson, Newmarket; Executive Committee, Drs. D. C. Smith, Stouffville; Ford Butler, Aurora; C. W. Ellis, Bradford; C. H. R. Clark, Newmarket, and J. W. Barker, Cannington; Educational Committee, Drs. Smith, Clark, R. M. Stewart, J. W. Barker and Adams.

An admirable address was given by Dr. W. H. Doherty, of Toronto, on "Practical Plans for Dental Education of the Public." It is to be hoped that Dr. Doherty may be prevailed on to have this address published in some of our dental magazines, as it is deserving of wide circulation.

The meeting was brought to a close after a vote of thanks had been presented to Dr. Doherty and also to the Temple-Pattison Co., which latter was replied to by Mr. H. P. Temple and Mr. J. Z. Henry.

At the final meeting of the Montreal Dental Club of the season of 1912-13 the following officers were elected for the coming year: President, Dr. E. J. Stuart; Vice-President, Dr. F. M. Wells; Sec.-Treas., Dr. R. H. Somers; Committee, Drs. S. Burns, C. Jack, C. J. Conroy, J. S. Ibbotson and J. S. Dohan; Auditors, Drs. J. B. Morrison and F. A. Stevenson. A paper on "Abscesses on Otherwise Sound Teeth" was read by Dr. J. S. Dohan, who also exhibited some very interesting specimens.

Dr. N. C. Carmichael, who has been associated with the late Dr. G. C. Mathison, dentist, for several years past, announces that he is continuing the practice in the same office, 325 Portage Avenue, Winnipeg, Man.

THE DENTAL SOCIETY OF WESTERN CANADA

Calgary, Alta., July 17, 1913.

To the Editor:

Dear Sir,—Having attended the meeting of the Dental Association of Western Canada, held in Calgary, July 7, 8, 9, I wish to state a few of my impressions, and my high appreciations of the men who composed it and of their work.

This has been indeed one of the memorable weeks of my life, and I count a special and providential privilege that I have been permitted to meet and form each pleasant acquaintance with the dentists of Western Canada.

One of the first things to impress a stranger is that they are nearly all young men. The only gray-beard I saw was a "has-been" one who had retired from practice after years of active service as a pioneer dentist, when he had to go from place to place hundreds of miles apart, with Calgary little more than an out-post, for his headquarters. I presume and hope that his investments have been so fortunate as to make him independent the rest of his days.

I refer to Dr. O'Sullivan, who was our efficient toast master at the banquet given Tuesday evening, the 8th. I was told that there was quite a sprinkling of older men in the wide country embraced by the Association, but with few exceptions they did not attend the meeting. As usual, therefore the profession has to depend largely on the young men for the spirit of progress.

But too many of the young men were absent, and to these as well as to the older ones I wish to address a few words hoping some may read and take to heart.

I was told that out of a registration list of about four hundred dentists only seventy-five names were represented at this meeting, three hundred or more failed to respond by their presence and only a few excused themselves by letter.

Even some in Calgary and in near by towns who could easily have come did not apparently think it worth while.

We are reminded of a parable, that when a great feast had been prepared at much labor and expense, and the guests invited: They all with one accord began to make excuse.

The City of Winnipeg, 800 miles distant sent eight or more representatives. It is hardly believable that Regina, capital of a province, only half as far should have sent but one, a woman, "Verily I say unto you, wherever this gospel shall be preached throughout the whole world, this shall be spoken of as a memorial of her.

Do you not know, gentlemen that all growth, all advancement is through organized effort? There is little accomplished without a "getting together." The profession constitutes truly a social organism. Are you not part of it? Then it is your duty to take a part in it, to contribute what you may, be it ever so little. To be even an appreciative listener is important your presence alone is an encouragement.

I sincerely hope that the attendance may be doubled within the next two years.

I cannot speak too highly of the work of the executive committee, Drs. E. M. Doyle, president; A. E. Heacock, secretary, in arranging all the details of the meeting and of the entertainment. The uniform courtesy and kindness shown by the members to their guests and to each other I have never seen surpassed, and I will say in conclusion that to form the acquaintance of Dr. Thornton, of Montreal, and listen to his remarks, was worth a considerable part of my journey.

Yours sincerely,

GARRETT NEWKIRK,
Pasadena, Cal.

DOMINION COUNCIL EXAMINATION REPORT

The following candidates passed in the subjects mentioned:

OPERATIVE DENTISTRY (Clinical):—J. C. Allan, Douglas Brown, J. M. Dixon, J. R. Doyle, J. A. Dean, Fuller, G. W. Harris, W. T. Haynes, K. M. Johnson, Leatherdale, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. McPherson, W. J. McEwen, D. R. McLean, W. H. McLaughlin, C. R. Minns, McKay, D. A. McCarten, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, Staples, F. S. Sawaya, M. C. Tindale, W. G. Trelford, C. E. Vandervoort.

PROSTHETIC DENTISTRY (Clinical):—J. C. Allan, Douglas Brown, G. V. Connolly, J. M. Dixon, J. R. Doyle, J. A. Dean, Fuller, Godwin, G. W. Harris, W. T. Haynes, K. M. Johnstone, Leatherdale, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. McPherson, W. J. McEwen, D. R. McLean, W. H. McLaughlin, C. R. Minns, McKay, D. A. McCarten, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, Staples, F. S. Sawaya, M. C. Tindale, W. G. Trelford, C. E. Vandervoort.

OPERATIVE DENTISTRY (Paper):—J. C. Allan, J. L. Adams, Douglas Brown, G. V. Connolly, J. M. Dixon, J. R. Doyle, J. A. Dean, G. W. Harris, W. T. Haynes, R. S. Hamilton, W. E. Hughes, K. M. Johnstone, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. McPherson, W. G. McEwen, Chas. E. McLaughlin, D. R. McLean,

W. H. McLaughlin, C. R. Minns, D. A. McCarten, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, F. S. Sawaya, M. C. Tindale, C. E. Vandervoort.

PROSTHETIC DENTISTRY (Paper):—J. C. Allan, J. L. Adams, Douglas Brown, G. V. Connolly, J. M. Dixon, J. R. Doyle, J. A. Dean, Johnstone, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. J. W. Harris, W. T. Haynes, R. S. Hamilton, W. E. Hughes, K. M. McPherson, W. J. McEwen, C. E. McLaughlin, D. R. McLean, W. H. McLaughlin, C. R. Minns, D. A. McCarten, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, F. S. Sawaya, M. C. Tindale, C. E. Vandervoort.

PHYSICS, CHEMISTRY AND METALLURGY:—J. L. Adams N. S. Bailey, J. S. Bricker, H. K. Box, C. H. Cowan, G. P. Chisholm, J. H. Duff, J. A. Dean, B. R. Gardiner, G. H. Harris, A. N. Hill, W. E. Hughes, D. C. Locke, F. F. McLellan, C. W. Parker, F. S. Sawaya, H. A. Stewart, D. J. Sutherland, H. V. Schwalm, J. F. Sebben, C. E. Vandervoort, K. F. Woodbury.

JURISPRUDENCE AND ETHICS:—J. C. Allan, J. L. Adams, D. L. Brown, G. V. Connolly, J. M. Dixon, J. R. Doyle, J. A. Dean, B. R. Gardiner, G. W. Harris, W. T. Haynes, W. E. Hughes, K. M. Johnstone, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. McPherson, W. J. McEwen, Chas. E. McLaughlin, D. R. McLean, W. H. McLaughlin, C. R. Minns, D. A. McCarten, H. A. Mustard, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, F. S. Sawaya, M. C. Tindale, W. G. Trelford, C. E. Vandervoort.

MEDICINE AND SURGERY:—J. C. Allan, J. L. Adams, D. L. Brown, G. V. Connolly, J. M. Dixon, J. R. Doyle, J. A. Dean, G. W. Harris, W. T. Haynes, K. M. Johnstone, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. McPherson, W. J. McEwen, D. R. McLean, W. H. McLaughlin, C. R. Minns, D. A. McCarten, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, F. S. Sawaya, M. C. Tindale, W. G. Trelford, C. E. Vandervoort.

ANAESTHETICS AND MATERIA MEDICA:—J. S. Bricker, H. K. Box, J. A. Dean, B. R. Gardiner, G. W. Harris, A. N. Hill, W. E. Hughes, D. C. Locke, D. A. P. McKay, Chas. E. McLaughlin, F. S. Sawaya, H. A. Stewart, D. J. Sutherland, H. V. Schwalm, J. F. Sebben.

PATHOLOGY AND THERAPEUTICS:—J. L. Adams, N. S. Bailey, C H. Cowan, G. P. Chisholm, J. A. Dean, B. R. Gardiner, G. W. Harris, R. S. Hamilton, A. N. Hill, W. E. Hughes, D. C. Locke, Chas. E. McLaughlin, C. W. Parker, F. S. Sawaya, H. A. Stewart, D. J. Sutherland, H. V. Schwalm.

Orthodontia:—J. C. Allan, J. L. Adams, Douglas Brown, G. V. Connolly, J. M. Dixon, J. R. Doyle, J. A. Dean, G. W. Harris, W. T. Haynes, W. E. Hughes, D. C. Locke, J. H. Lumsden, D. A. P. McKay, A. D. McPherson, W. J. McEwen, D. R. McLean, G. H. McKeown, W. H. McLaughlin, C. R. Hinns, D. A. McCarten, M. R. Parkin, C. Purdon, J. W. Reynolds, G. J. Robertson, H. M. Schwitzer, F. S. Sawaya, W. G. Trelford, C .E. Vandervoort.

Anatomy.—G. P. Chisholm, W .C. Cooper, J. A. Dean, A. A. B. Kenny, F. J. Lawson, A .R. Leggo, D. C. Locke, T. C. McCarten, F. F. McLellan, F. S. McGrary, C. W. Parker, J. G. Roberts, F. S. Sawaya, S. Smockum, F. S. Tucker, H. A. Thompson, T. J. Wright.

Physiology, Histology and Bacteriology:—N. S. Bailey, J. S. Bricker, H. K. Box, G. P. Chisholm, J. H. Duff, J. A. Dean, G. R. Gardiner, G. W. Harris, A. N. Hill, W. E. Hughes, D. C Locke, C. E. McLaughlin, F. F. McLellan, R. J. Pennal, C. W Parker, F. S. Sawaya, H. A. Stewart, D. J. Sutherland, H. V. Schwalm, J. F. Sebben, K. F. Woodbury.

C. H. FITZSIMONS SELLS OUT TO DR. PATON.

Dr. C. H. FitzSimons, who has enjoyed a lucrative dental business in St. Thomas for 37 years, has retired from practice, having disposed of his business to Dr. J. R. Paton, of Vancouver, B.C.

Dr. FitzSimons is one of only a few dentists who have spent such a long period in active practice. It will be good news to his friends to know that he will continue to live in St. Thomas, busying himself looking after his other interests.

FOR SALE—Complete up-to-date outfit and practice. First-class location in a growing industrial city of Manitoba. Will sell out at 60% of inventory price if taken soon. Good reasons for selling. Apply to the Temple-Pattison Co., Limited, Winnipeg or Toronto.

Dominion Dental Journal

VOL. XXV. TORONTO, SEPTEMBER 15, 1913. No. 9.

Original Communications

USES OF X-RAYS IN DENTISTRY

BY FRANK D. PRICE, TORONTO.

Some of the lantern slides shown at the meeting of the Ontario Dental Society in Toronto, May, 1913.

Probably the dental surgeon has more frequent use of the X ray than the general surgeon. Bone tissue best offers itself for examination by the shadowgraph. No other part of the body suffers from as great a variety of pathological lesions as the alveolus. No others are more easily or surely diagnosed by the aid of a skiagraph. Very many cases in point might be cited, but the following will illustrate. A lady called suffering from a sore on the lower right alveolus. She was wearing a lower denture. The fact that her brother had died from a cancer that started in that region led her to greatly fear a similar fate for herself. Her relief may be imagined when it was shown that a fragment of root had remained after an extraction years before and the absorption of the alveolar ridge, with irritation from the plate had allowed it to become very sore. A man's jaw had been fractured and had been ligated with silver wire sutures. Afterward the sutures were removed. However pus continued to discharge from the lower external surface. The skiagraph

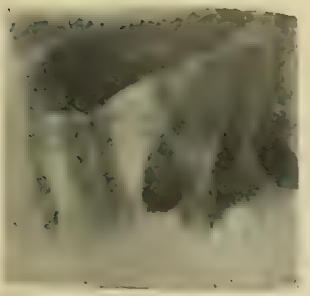
Fig. 1.

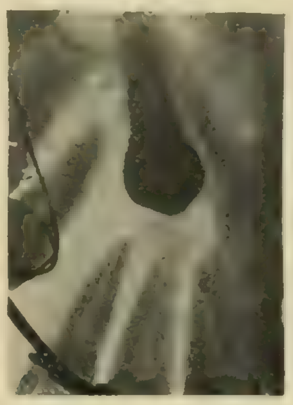
Fig. 2.

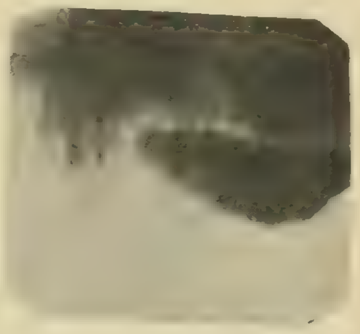
Fig. 3.

showed that a silver ligature had not been found and showed its position very definitely. To simply enumerate the many cases where the X ray assists in diagnosis would take too much time now. The therapeutic value of the X ray is often shown where pus exists. One dentist reported that he had never had a case of dental alveolar abscess examined, but the X ray cured the abscess. It certainly inhibits the growth of bacteria.

Figures 1, 2 and 3 show cases of unerupted cuspids. In Fig. 1 the cuspid is moving toward the median line. In Fig. 2 it is high up on the palatal side of the alveolus. In Fig. 3 it may he seen lying horizontally. It is a case of an old lady who was reported to be getting her third set of teeth. The cuspids never had erupted until late in life and the absorption of the alveolar ridge and the wearing of a denture had uncovered the cuspids.

Fig. 4.

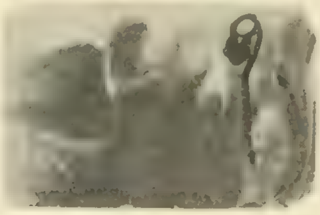
Fig. 5.

Fig. 6

Figures 4, 5 and 6 show impacted lower third molars. In Fig. 4 a metal cap is shown on the second molar. Attempt had unsuccessfully been made to move the teeth posteriorly. Only a little tipping had been effected. In Fig. 5 the third molar lies horizontally. The second molar is much decayed. Lead wires were placed in the canals of the first molar to trace them to find cause why abscess would not heal. Radiograph showed a perforation of the distal root and an abscess pocket in the saddle. In Fig. 6 dotted line shows about the gum surface. The whole face was badly swollen and the upper jaw was suspected. Even an attempt by anaesthesia and probing failed to discover a lower third

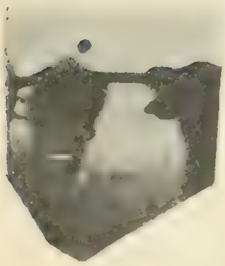
Fig. 7.

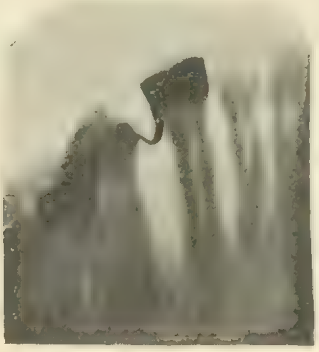
Fig. 8.

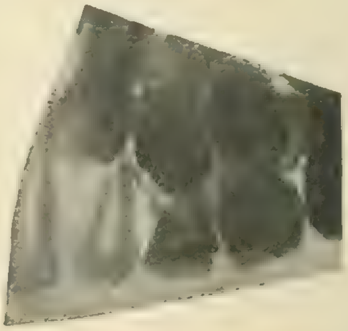
Fig. 9.

molar. But the skiagraph showed that it was the cause of all the trouble.

Space has been made (Fig. 7) for an unerupted bicuspid and (Fig. 8) for lower cuspid. Examination shows that the cause of the delay in eruption is that none are present. In Fig. 9 the unerupted cuspid and bicuspids are shown.

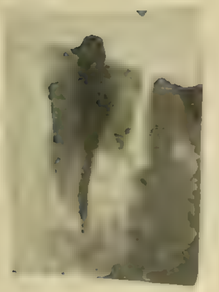
Fig. 10.

Fig. 11.

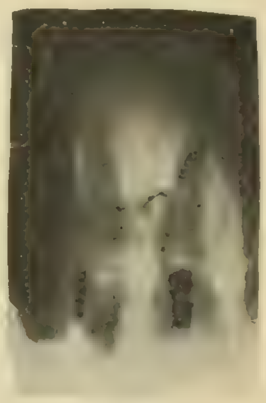
Fig. 12

Figures 10, 11 and 12 are poor reproductions of prints showing root perforations and misplaced root fillings. In Fig. 11 the gutta percha points were passed between the roots of the lower molar, against the bone, where they were bent as shown. An extensive abscess followed. See also Fig. 12, the curly gutta percha point passed through the mesial side of the lateral incisor root and the abscess involving both central and lateral roots. In Fig. 13 a perforation of lateral root at point marked 1, caused pus pocket extending up to 2. Figures 14 and 15 show exostosis, with alveolar abscess, Fig. 14. In Fig. 15 the bony growth is indistinctly shown on the distal root, but negative shows it plainly about both roots. If it had been cemental tissue enlarged it would have shown darker as the cementum shows darker than bone.

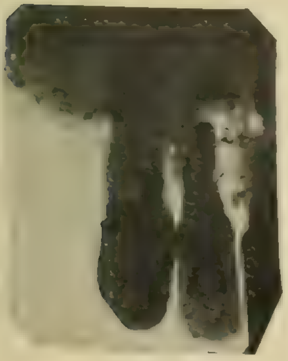
Fig. 13.

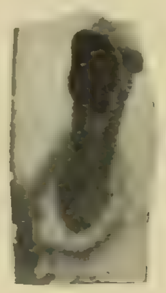
Fig. 14.

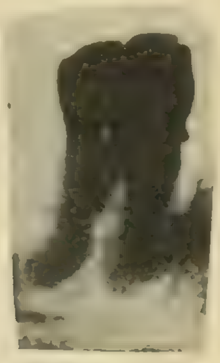
Fig. 15.

Figure 16 shows badly trimmed molar fillings and resultant pyorrhea. Figures 17 and 18 show poorly supported bridges. In Fig. 17 the lateral root is shown decayed from the post of the bridge. In Fig. 18 the attachment is to a fragment of a root that has no alveolar support.

Before an attempt is made at restoration of a molar (Fig. 19) a skiagraph is made. The mesial root is decayed from the crown, which is a shell. In Fig 20 the first molar having been extracted the second molar is badly tipped forward. Its loss is threatened by abscess. No third molar exists. Moral—preserve the first molar. Fig. 21 shows the undeveloped central root at about nine years of age in this patient. As the time of eruption and development is not constant with all children it is extremely needful that we be careful to preserve the pulp if at all possible.

Fig. 16.

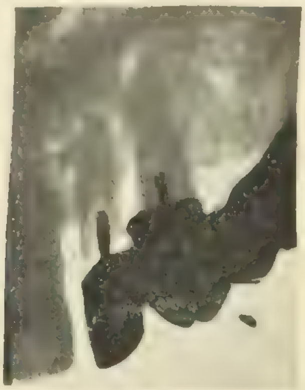

Fig. 17.

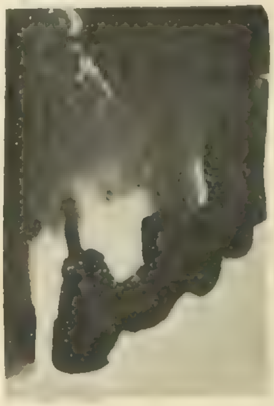

Fig. 18.

Fig. 19.

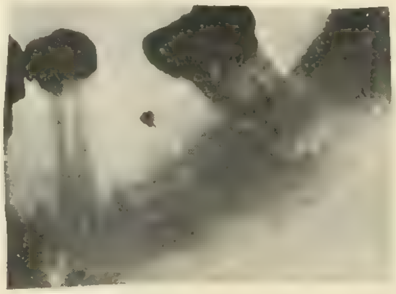

Fig. 20.

Fig. 21

To find the cause of severe neuralgic pain seemed impossible until a skiagraph discovered fragments of molar roots that were grown over with the gum tissue (Fig. 22). Fig. 23 shows where, after extraction, infection and severe pain suggested that fragments of roots may have remained. The picture shows none. Fig. 24 shows where a molar had been replanted. In about four years the crown fell away, but the gum refused to heal completely. Our print shows the gold plugs that had been put in the ends of the roots and the gutta percha points from the roots all grown into the new bone.

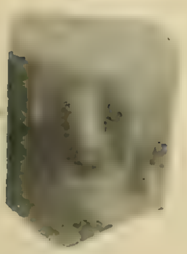

Fig. 22.

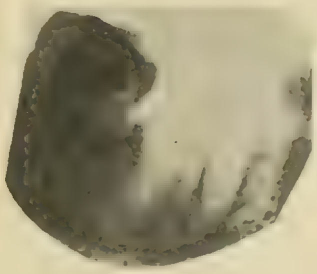

Fig. 23.

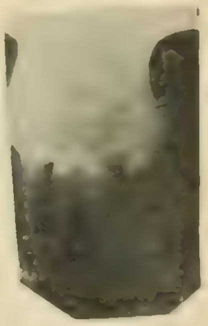

Fig. 24

May we not indulge the hope that every dental centre, if not every dental office will soon possess a dental X ray outfit, thus enabling dentists the better to operate in light and the patients to enjoy perfect health.

SOME NEW APPLIANCES AND BOOKS

A. E. Webster, M.D., D.D.S., L.D.S.

Read before the Ontario Dental Society, Toronto, May, 1913.

Note.—It was impossible to get cuts to illustrate all the instruments shown

Mr. President and Gentlemen: The President has just accused me of being mixed up with an advertising stunt, but it is not of my choosing. The Executive asked me to present this subject and I found great difficulty in cutting it down to what could be done in the time, and at the same time show things that are useful, and those which are new; some that are here I have tried and some I have not.

I have made a certain order on this blackboard, but it does not contain one-quarter of what I have to show you. I have here extracting forceps. There are some new forms which have been gotten out by the Cleveland Manufacturing Company that I want to call your attention to, and you will judge yourselves of their value. Here are some of the forms for separating roots. There are some forms made by Ash which are rather new. Here is an instrument for holding the third molar when it is removed. An upper third molar is occasionally lost. Here is the Hawk's Bill for separating lower roots, recently introduced by Ash, and in fact you will find that Ash's forceps all run very much lighter than our makes of forceps on this continent. (Figs. 1, 2 and 3.) They use fewer forceps in England than we do, while they extract a great many more teeth. Here is one especially designed for cuspids. Those of you who have had any difficulty with cuspids might look at that one. S. S. White have modified their forms slightly. Here are two modifications which are worth looking

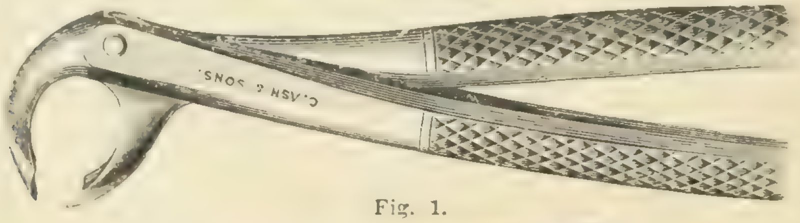

Fig. 1.

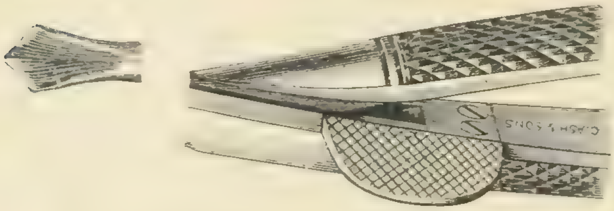

Fig. 2.

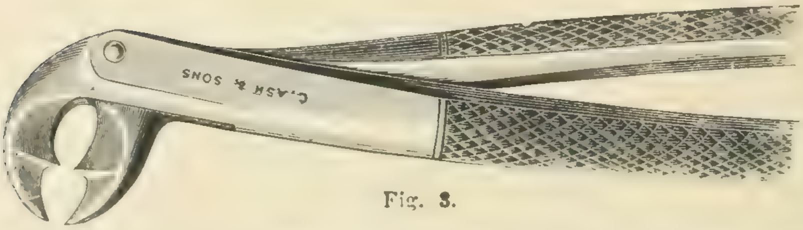

Fig. 3.

at. These are the modifications, I think, of "86" and "85A." (Figs. 4 and 5.) I think if you take hold of those instruments, those of you who are using the other forms, will be able to appreciate there is an advantage.

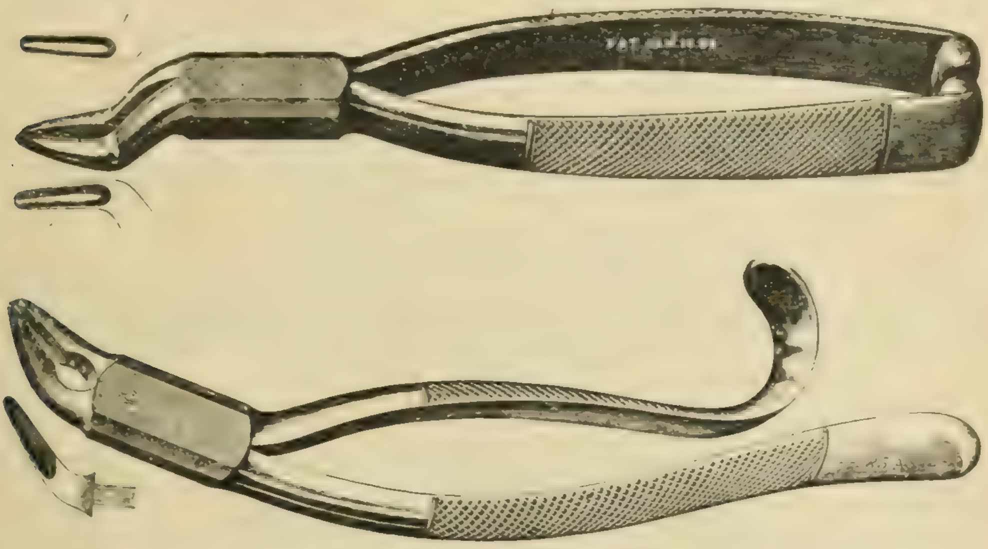

Fig. 4.

Along with those I am showing you here, elevators made by S. S. White. These are made of brass and are hollow, very light. I am not able to say why these handles should be so large or so long. (J. B. WILLMOTT: We have been asking for larger and longer handles for years.) Here is a set of four of Cryer's elevators recently manufactured. (Fig. 5.)

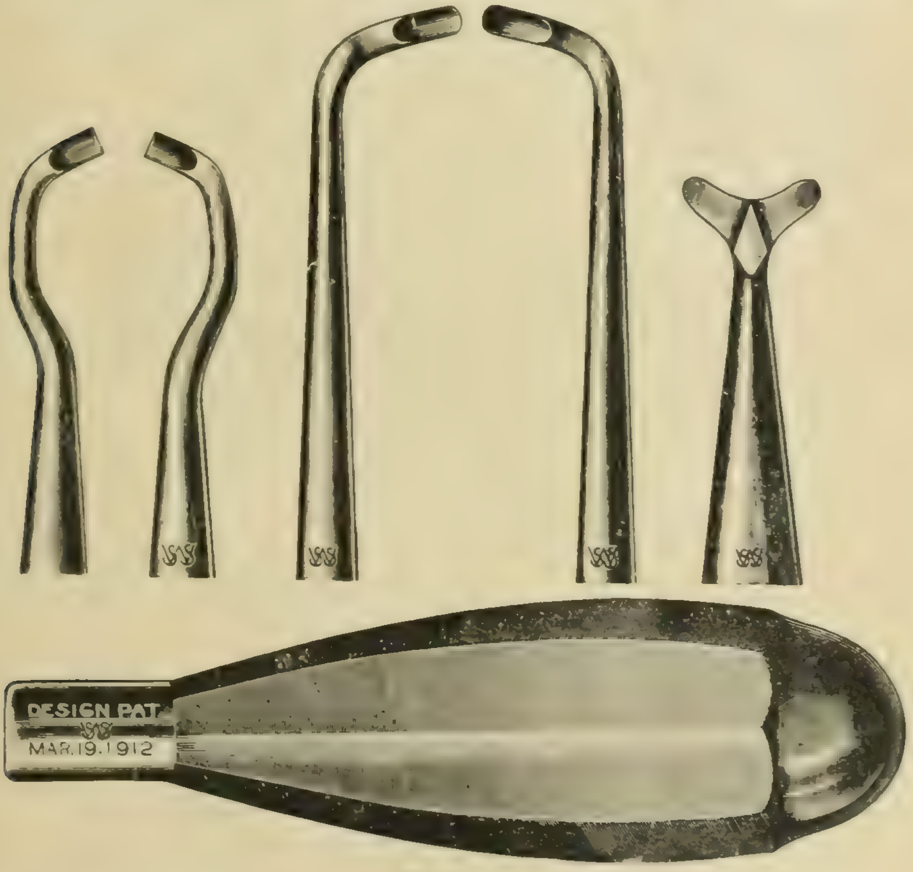

Fig. 5.

Next we take up those things in connection with prophylaxis: I have here a very nice holder made by S.S. White. It is a contra angle holder, and note that it is a little cleaner than those we have been using, more easily cleaned around the head. There is a little pin which comes out, which by turning the handle impinges upon the orange wood pin and holds it. It seems to be a very neat little instrument. (Fig. 6, A and B.) There is a new holder by Skinner which I failed to get; it is a double end and also a single end holder. Then there is one that many of you are using, by Ivory.

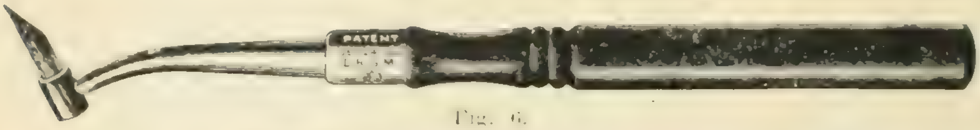

Fig. 6.

Fig. 6a.

Fig. 6b.

Now, for linen tape, this strikes me as being a very nice little thing. You may put the powdered pumice or the flower of pumice on it. (Fig. 7.) It is strong and you can pass it between the teeth and rub as hard as you please. It is gotten up to sell something else, I have forgotten what it is. It is to sell some kind of powder. I don't know that the powder has any particular advantage, but I think those little strips have. In that same connection is the silk tape. I remember when this was first put on the market by Cutter and was introduced here in Toronto. A number of men reported to the supply houses they didn't like this tape very well, it was too thick, it didn't hold the rubber dam any better than floss silk, and it was therefore not sold for two or three years. This has been on the market here in Toronto for probably seven or eight years and if you will pass it around probably some of you will see it is not intended for holding the rubber dam at all; it is intended to have pumice rubbed into it and be passed between the teeth to polish them. Here is a nice way to have silk tape. It comes right out of the holder. That appeals to me as being a very nice thing. Here is a waste cotton holder. I want to say waste cotton holders are problems, because so many of us have been in the habit of using an old-fashioned metal holder which is not taken out and sterilized after each operation. You take the cotton off the pliers and catch them into the horns of the little thing and pull the cotton off; when this is done several times both pliers and holder

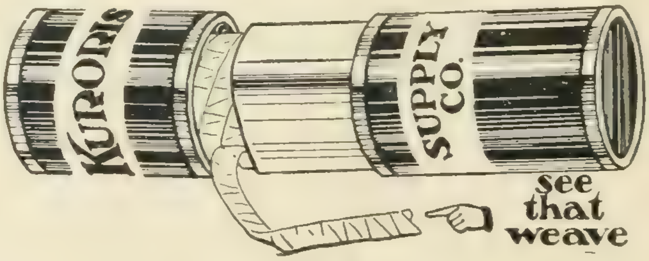

Fig. 7.

have an infection from each patient operated upon. The Red Cross people got out those little aseptic boxes for catching cotton, but those little paper edges do not always catch. This appliance is for the purpose of catching the cotton. They have several of these little caps and you can take one off each time and sterilize it. (Fig. 8.) The objection I see to this is that they have ground up the surface of it so as to catch uncleanness.

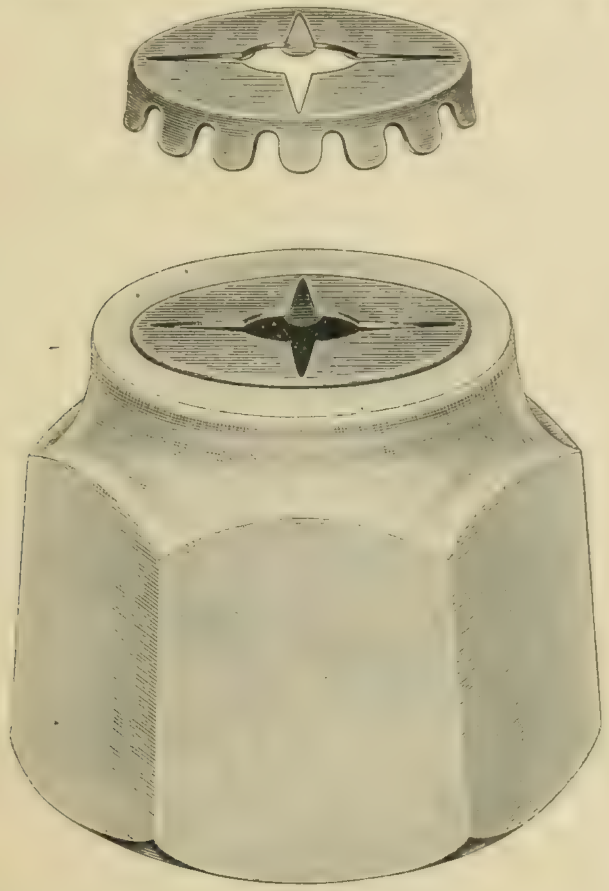

Fig. 8.

The next thing will be the cutting instruments. I have here some new ones by S. S. White. Every man here has had the difficulty of getting room to use the right angle on the buccal surface of a third molar and at the same time see it. Whites have made what they call short shank burs. I really think they are a good thing. I have tried a few of them and they seem to work very nicely. (Fig. 9.)

Fig. 9.

Now, I have not some burs I ought to have, and some of the profession have not seen them, but I will show you on the blackboard. (Draws diagram of bur). I know you can't buy them any place except one, and that is from a German peddler that goes around. All the supply houses are trying to get these burs.

Since the introduction of inlays we find we require a bur which does not clog up. Most of the burs manufactured with the short blades soon fill up and you are just running a bur that does not cut. This form of bur is made with a very long blade, and very few blades in it. They didn't seem to think there was any demand for it, while the great majority of men here know that there is a man going around selling the very form we have here marked, with this long blade and cone shaped with the end cut off. They are really a good bur for that purpose. You understand these blades break easily because they are so long, but while they last they cut. The others do not ever cut because in about two rounds they are filled up and it is all over.

There are smooth cut burs made for finishing the walls of cavities for inlays that work admirably. You can buy them at any supply house, they all have them. They are not cross cut, the elevations are low and you may revolve them very rapidly and they will make a very smooth margin, practically as smooth a margin as a stone. In this same connection we will take up the question of stones. I am surprised that so few men use stones in the preparation of cavities. Here is a set of stones and I want you to especially look at those thin wheel stones—the thin edge for cutting out fissures in molars and bicuspids. Why, anybody with a good stone like that would attempt to cut out enamel with a bur I don't know, because fifteen or twenty rounds at the beginning will cut the enamel away so much that a bur will sail through it very easily. Now, these are all made both for the straight and right angle handpieces. I have here the Case discs which are made with an abrasive on one surface of the disc, made of steel. They work splendidly for separating between teeth, for a crown or for an inlay, but just about sixteen rounds finishes the abrasive and then it heats up the tooth after that. If they would last longer and were any reasonable price, I think they would be the best thing made. They ought to be put on the market to be useful at about, I should think, 50 cents a dozen. They used to be sixty cents each and they are now fifteen cents a piece. (Fig. 10.) The safe sided stone disc is usually too thick. Here are the Darby-Perry instruments that are perhaps as good forms and better cutting edges than

Fig. 10.

most other instruments. (Fig. 11.) We have been loaded up with Black instruments which are too large for the great majority of cases and too thick on the edge, clumsy; you have to be going to the laboratory every little while to grind them down and get them thin enough on the edge to cut. I would rather buy an extra instrument once in a while with a thin edge than be bothered grinding it down in the laboratory. I want you to specially look at the small forms, the little spoon excavators which are so useful for the preparation of cavities in anterior teeth, where we don't cut away the enamel of the tooth but try to protect it as much as possible.

There are now a few specialties. Every man here has seen all the forms of this instrument, I don't know why every man has not got one; I haven't got one myself, but the supply houses say that the men who use them wouldn't be without them for anything—guards for handpieces with sharp cutting instruments, like wheel stones and knife edged instruments. As soon as you look at them you see what they are for. Every man here has seen them. (Fig. 12.)

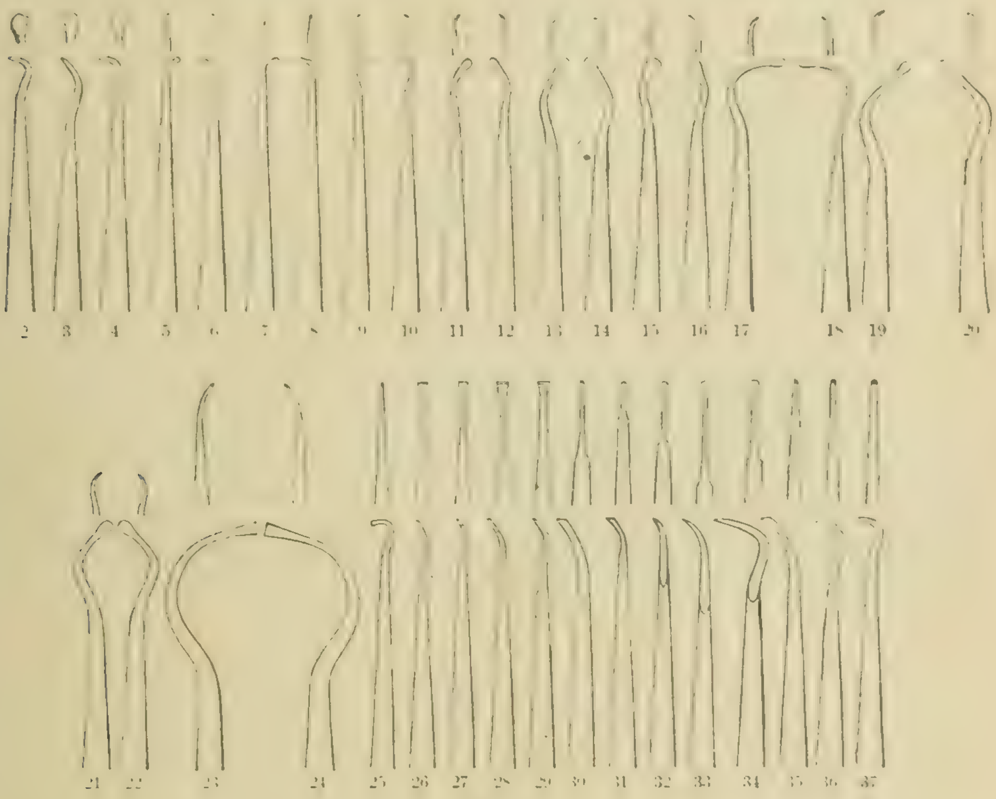

Fig. 11

I want to call your attention to this instrument. Dr. Hoggan says that it is a good instrument. I can see how useful it is for all of you who take plaster impressions and want to know how nicely they can cut the plaster down the occlusive surfaces of the teeth. That will cut plaster. I have tried cutting the plaster in the patient's mouth, and I want to say it cuts beautifully. Cut it that way and then let it in sideways and break the plaster off. That I think is a very useful instrument. (Fig. 13.)

Here is an instrument that a great number of men have not used, although it has been on the market a long time. They really don't know the merits of it or perhaps they would use it. This is the Mosley crown remover. I want you to look this over. I believe it is the only thing that will remove a crown without breaking the facing.

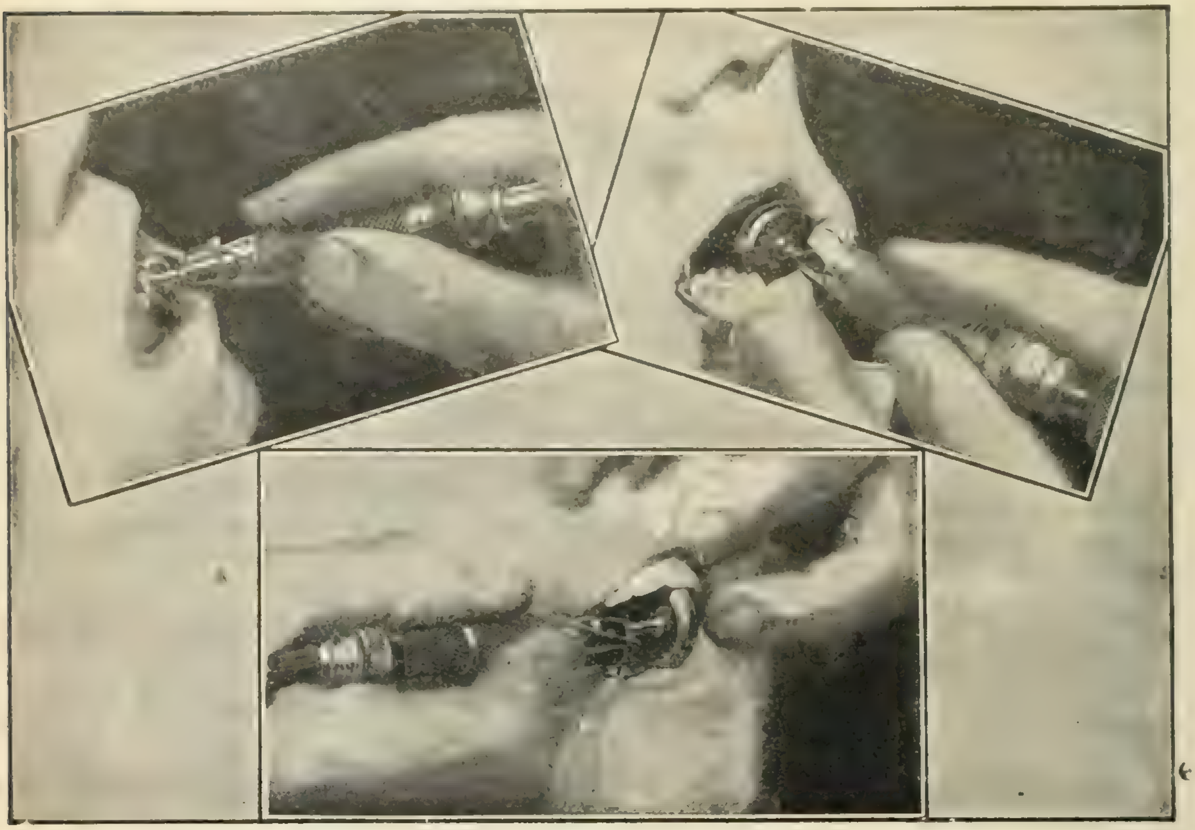

Fig. 12.

A VOICE: I would like to see that thing work.

DR. WEBSTER: That is a good chance for a clinic to-morrow. Dr. Davy will give a clinic to-morrow on the Mosley remover.

Here is a little applicator that is a simple little thing. If you want to wipe in the back of the mouth when things get pretty sloppy, you can grab a big cotton roll and do some wiping. It is very handy for sick people in bed.

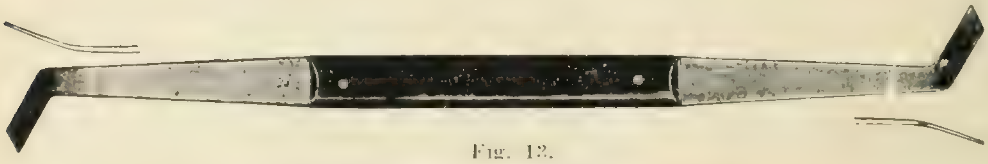

Fig. 13.

Here is something that is not commonly used, although it has been on the market for years, a Perry separator. I daresay there are perhaps not ten men in this room who use a Perry separator, and really and truly it is the only thing that will separate teeth. It just takes hold of the teeth and takes them apart; if the teeth are irregular it doesn't work very well; a cavity can get in the way too, but like some other things, when it works, it works well. (Fig. 14.)

With the introduction of the inlay comes a lot of wax carvers, and I don't know how better to do it than just send a lot of those around. S. S. White's have made a lot of wax carvers. Here is a bundle of double and single end wax carvers. (Figs. 15, 15A.) You can look them over and find some of them useful. I have a set here. Here is the Gripman wax carver, which is right new. Those of you who are in prosthetic work would perhaps appreciate it. The original wax sucker was made by Dr. Roach, of Chicago; then we have Mr. Shell in this city with a copy. The advantage of his is that this is just an ordinary hypodermic needle here without the needle. This instrument is invaluable to the men who make gold inlays. I can't see how you can go on making gold inlays for molars and bicuspids without a wax sucker. You may use it with your mouth or put it on a saliva injector and you can suck up the wax beautifully. You heat the needle and the wax is sucked up into the central part of the cylinder and caught in there with a piece of cotton. $2.50 is the price. $4 was the price of the original one. You cannot make inlays without it. (Fig. 16.)

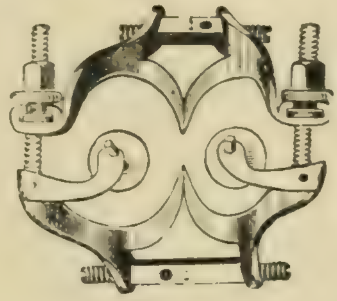

Fig. 14.

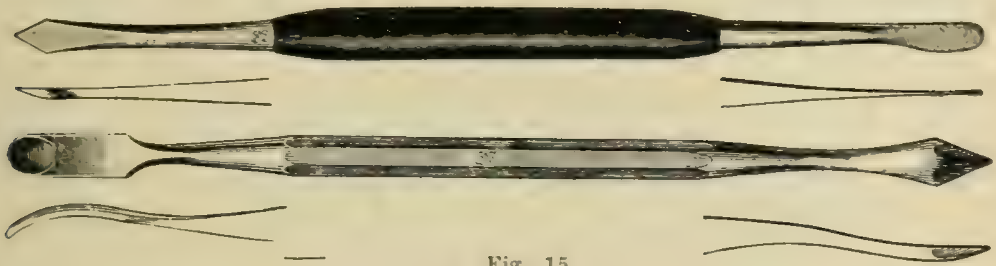

Fig. 15.

Here is a new instrument. I haven't time to demonstrate it; you can just look at it. It is Ivory's circular band matrix holder. You slip the matrix in here. You will have to go to Mr. Ivory, if he is here to-morrow, and see this, but I want to say that this is a splendid instrument. All of you know how often you have to put an amalgam filling in the mesial and distal surface of a molar and you want to put it all in at one time. This Ivory matrix holder fills the whole bill. A good many of you have asked about tantalum instruments for silicate fillings. Here are three forms which after some experience have proven themselves the three most acceptable forms. I regret very much they have to ask such a price for these instruments.

This is another form of that lower mouth prop. I don't know much about these things. This one has a special little attachment to put the saliva injector on and draw the saliva out. For me, I can't successfully work any of this lower mouth business.

Dr. Waldron: The reason is that most patients have too short a neck which makes it impossible to use this.

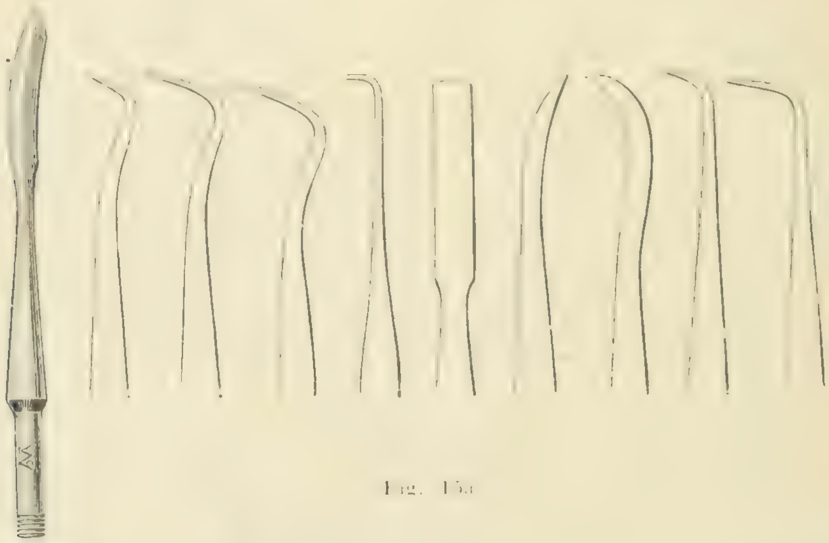

Fig. 15a

Dr. Webster: Dr. Clark says what you say is a mistake; it is too much bust, not too much short neck.

Here is a scaler introduced by Dr. Bennett of London, England—a universal scaler. This is supposed to pretty nearly scale every tooth. It is a double ended instrument which personally I don't like. Here is a set of explorers which I haven't used and I don't know anything about. Look at them. They are very nicely made, but to me they are a little too short; They prick you with one end while you work with the other. Here is a set of Scalers sent out by the Dentinol Company. Some of these are splendid forms. They will get to places that others do not. I intended to have a number of the McDonagh files, but for some reason or other I neglected to bring them. Dr. McDonagh has made some very excellent files for taking calculus from the roots of teeth.

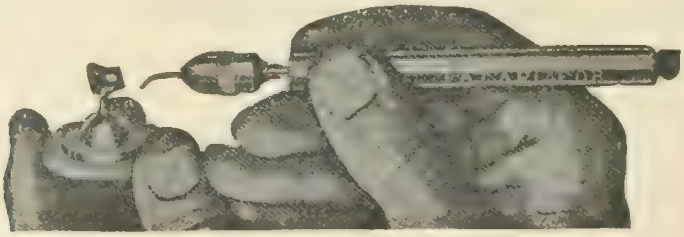

Fig. 16.

Here is a mixing slab. I haven't tried this only to put acid on it to see if it dissolved it. I couldn't see that it did. You know most of the slabs which have that color get rough.

Here is a decorative appliance. You can see at a glance what it is. It has the merit of having small bottles and corks on the outside and it rotates; it looks well and will give your assistant something to do to keep it in order.

The next we have here, all of you have heard of, the Buckley therapeutic outfit—Buckley's drugs. It is not necessary for me to go over these, but there is here the Phenol compound, the Phenol Sulphonic acid, Phenol Sodique, Eucalyptol compound, local anesthetic, pyorrhea astringent, dental liniment and so on to the end of the chapter. Those drugs are very good and some of you have not had the opportunity of seeing them.

Now next I want to call your attention to some of the recent publications. There are some publications that have come out within the past year and a half that the profession have not had an opportunity of seeing. Here is Prinz' Dental Formulary which is really a good book; it is an office companion. Then Goslee's Crown and Bridge Work; lectures on general anesthetics, by Du Forde, just published, the revised edition. Then here is a book I am often asked about, Burchard & Ingils' Dental Pathology of Therapeutics. That is a very useful book. It was written originally for a students' book but it is more useful altogether for the general practitioner. You would be surprised at the number of letters I get asking for information which is all given in that book. Here is a new book by Colyer on Extracting, one of those little books which is very useful, with a lot of little hints in it. Here is a splendid book just published, which saved a man's life in court, not long ago. Fisher on Local Anesthesia. We are getting a little bit of notice in the Courts just now. Here is a book which is published for the practitioner, not intended for the student at all. Greenbaum on The Practice of Dentistry. If you Brown on Surgery. I find a great number of men ask questions about just take a look at that you will see it is written for the practitioner and not for the student. I intended to bring over a book by G. V. I. Pathological and Surgical practice, and G. V. I. Brown has written a book recently that fills that bill pretty well, along with Burchard and Ingils. Now here are two or three books that a writer brought out within the last year, The Prevention of Dental Caries, by Sim Wallace. I want to say to you every time you see an article written by Sim Wallace read it. Cause and Prevention of Dental Caries, by Sim Wallace; Modern Dietetics in the Causation of Disease, by Sim Wallace.

Those four books have set more people thinking in Great Britain than anything else written in Dentistry. Then following those came this work of Pickerill on the Relation of Dietetics to Dental Caries. That is the most readable book that I have seen in a long time.

A Member:—Where are those books of Sim Wallace published?

DR. WEBSTER:—In England. You can get them from any of the dental supply houses here. I know you can get them from Vanavar; they order one at a time; they won't ever have them overstocked. Those are about all I intended to show you in the line of books. If there is any question about books I will be glad to answer it. I have here Black's books. Some of you haven't them. When you go to make a dental library it can be no good without these. These two books should act as the basis of your library. They are written by Dr. Black. The next two volumes will appear I understand very shortly. These two books cover the hard tissues of the mouth. The next two will cover the soft tissues of the mouth. Those books are worth looking over. They are expensive, $5 apiece, I understand.

Most of you will find that you would rather get a book of about 100 pages instead of seven hundred, because you can read one hundred pages but you will never start in to read seven hundred; such a book is only used as a reference.

PRESIDENT'S ADDRESS

E. M. DOYLE, D.D.S., L.D.S., CALGARY, ALTA.

Read before Dental Society of Western Canada, Calgary, July, 1913.

Mr. Chairman and Gentleman:—It gives me much pleasure this morning to meet you here and give you all a very hearty welcome to our city. I hope you may have a very pleasant time, and when you leave us you may go feeling it was good to be here.

While we have reached, to a certain extent, perfection, restoring lost tissues, repairing defects and correcting irregularities, yet there is a great work for us along the lines of prevention.

To accomplish this we must first educate the people to realize the great importance of their teeth in aiding digestion, and in the assimilation of their food. They must be aroused to the fact that caries is the most prevalent of all diseases, and is doing more to undermine the health of the masses than any other single disease. When we have accomplished this we must show them how caries can be largely prevented by proper sanitary and hygienic conditions. This is a work where we must use great care, or our motives are likely to be misunderstood by a great many of the people with whom we come in contact.

In this connection is the dental inspection of school children by a dentist (not by a medical practitioner) and also the public clinic where the poor may receive attention at little or no cost.

There is another side of our profession I would like to mention, and that is the business part of it. When most of us graduated from college we began the practice of our profession with little or no business experience. I am very glad that we are having a paper on office management from Dr. Garvin, and I am sure we will all derive much benefit from it.

It is with very deep sorrow that I have to refer to the death of Dr. Geo. Mathieson, one who was always with us at our meeting, and whom we all loved. The profession has lost a very able and talented member, and most of us have lost a good true friend.

In closing I would like to remind you that next year the Canadian Dental Association meets in Winnipeg, and I hope to see a larger representation from Western Canada than we have ever had before.

I thank you, gentlemen. (Applause).

DISCUSSION.

DR. CLINT: I am very much pleased to be present this morning and to take part in this meeting of our Association, and to know that there is a prospect ahead of us of a very successful meeting. I hope that all the expectations of the officers of the Association have been fully met. We have a good programme before us, and I heartily congratulate the President and the other officers in their effort in providing such a programme as we have before us. I join heartily in expressing a feeling of great regret that one who has been prominent in our gatherings from time to time, and who has been instrumental largely in the formation of our Society, has been taken from us,—referring to the late Dr. George Mathieson, and I cannot express my feelings fully this morning; but I do wish to emphasize what the President has said in his report that the Society has lost a very valuable member, and those of us who were well acquainted with the late Doctor Mathieson have lost a personal friend. I well remember when he first came to Winnipeg his calling on me at the time. I was a member of the Board then, and a friendship was formed that with the years has deepened, and this morning I heartily express a heart-felt sorrow for the loss that we have sustained in his removal from our midst. (Applause).

DR. BUSH: Mr. Chairman: It seems to fall to my lot at every meeting of the Dental Society of Western Canada to be one of the men to discuss the President's Report—generally impromptu. I can only reiterate Dr. Clint's good words in congratulating Dr. Doyle, the President, and the officers of the Society on the excellent programme which they have prepared here. There are only two items which might perhaps have been left out, that is the opening of the discussion on Dr. Thornton's paper by myself, and my own paper. Otherwise I consider the programme a very good one. I feel a little sorrow that we have not a larger representation here from Winnipeg; but we have a goodly number here, and we can at least congratulate ourselves that if our gathering is not immensely large it is at least select, and that the intelligence of the dental profession of Western Canada, and in fact the pick of some of the Eastern men will be here to-day, and throughout this Convention.

In regard to the death of my dear friend, Dr. George Mathieson, I have prepared a motion which I will present at the proper time, but as the matter has been mentioned I will say all the few words I have to say in regard to it now, and that can be very little more than repeating what Dr. Clint has said. A great writer in a work which is of world wide renown was once accused of having repeated other people's words through more than half of his book, and he took that as a very great compliment. Now I am going to compliment myself by repeating Dr. Clint's words regarding Dr. Mathieson. Like Dr. Clint, Dr. Mathieson called on me on his arrival in the city, as I was Secretary of the Association at the time, and we formed a fast friendship which ripened as the years went by. Much as I esteem many of my friends in the profession, I know of no one whose loss I would feel more than Dr. George Mathieson. (Applause.)

DR. HARWOOD: Gentlemen: I did not intend to speak this morning, but I am very glad, like the rest of you, to be here, and to look forward to the good things which we think we are going to have, and I do not think we are going to be disappointed. I congratulate Dr. Doyle, the President, on his excellent address. It was short, as he said, but there is an old saying of "Short and Sweet." I like his suggestion that while we have accomplished a lot as we have in repairing the ravages of decay and the loss of teeth in the mouth, we have yet a lot to learn ourselves in regard to the preservation of the teeth, and I think that dentistry in the future will be, as he intimates, more a science of prevention than of cure. I think it is a step in the right direction, to which we are coming very rapidly. The idea of having dental inspection in our schools by a dentist, and not by a medical man, is taking hold of the profession, also the School Board and Boards of Health in our little city of Moosejaw, where we are doing something in that line, and at present the Board is considering applications for the position of Dental Inspector, to give part of his time to the work. We are only following what other cities have set out to do, and have accomplished considerable in that line.

I do not wish to add anything in regard to the reference to Dr. Mathieson, beyond what has been said. It was not my privilege to know Dr. Mathieson as intimately as the men who have spoken; but in the last few years in attending each Convention of our Association, as my acquaintance with Dr. Mathieson became greater the more I appreciated his worth, not only as a man, but as a dentist, I feel it a personal loss as the others have done, and I know that he is a very great loss to our Association. (Applause.)

DR. GARVIN: Mr. Chairman, Ladies and Gentlemen: At times it is really an unfortunate position to be in to be acquainted with the Chairman, and this is one of them. Since the organization of this Society I have been very deeply interested in its development, and in the possibilities for the advancement and growth of this live Society. I was particularly pleased when we were invited to come to Calgary for this meeting, and I think that even now we should at once congratulate the officers on the way in which they have handled this meeting thus far, and brought it to a successful completion, as far as the meeting here in Calgary is concerned. Meeting at Conventions of this kind, where we can sit and watch ourselves go by, and hear the discussions on many points that have worried us, are of the very greatest help, and I believe no one can attend a meeting of this kind without going back much benefited. The President, in his remarks, referred to Dr. Mathieson. I do not think that name can be mentioned in the profession in this country except with the greatest respect. Dr. Mathieson was to open a discussion on my paper. I do not know of any one who was more capable. There was no one more capable to write that paper, but those of you who know him will know that he always preferred to discuss a paper rather than write it, and I feel certain that his loss will be deeply felt.

I want to congratulate the President on his able report. I do not know that I can discuss it any further. (Applause.)

DR. GREENFIELD: Mr. Chairman and Members of the Society: I came to Calgary to see and hear, not to speak; but I am unfortunate, as Dr. Garvin says, in being acquainted with the gentleman in the Chair at the present time.

One of the features of Dr. Doyle's address I would like to mention was the point he brought out in reference to having dentists as examiners for school children's teeth, rather than medical men. As we all know there are medical men, possibly some of them that are doing this inspecting work that do not know the difference between a permanent tooth and a temporary tooth, and therefore the report and results of their inspection have very little advantage, and very little result can be obtained from the work which they are doing.

I can hardly express my feelings in reference to the death of our friend, Dr. Mathieson. Being with him for two years after I graduated, I developed an acquaintance and friendship which I will never forget. George Mathieson certainly directed me along lines of dentistry and helped me when I started out first as no man has ever done since.

I congratulate you, Mr. President, on your address. (Applause.)

DR. RIGGLE: Mr. Chairman and Members of the Association: At this meeting it is not only what is particularly before us that matters, but sometimes we get an inspiration which we cannot explain. One point that strikes me, and always has struck me is the point about the inspection of our schools by properly qualified men. I believe the time is not far distant when all over the Dominion a thoroughly confident dentist will be engaged to undertake this work in place of the old-fashioned method of the medical man doing so.

I was not acquainted with Dr. Mathieson, and did not know him personally, but I am desirous of mingling my feelings with the rest of us. I am obliged to you, Mr. Chairman. (Applause.)

Reviews

THE NEW PUBLIC HEALTH

The New Public Health, by Hibbert Winslow Hill, M.B., M.D., D.P.H.; Director, Institute of Public Health, London, Ontario; Late Director, Division of Epidemiology, Minnesota State Board of Health. First published as a series of eleven monthly articles by the Journal-Lancet of Minneapolis, under the auspices of the Minnesota State Board of Health. Minneapolis, Minn.: Press of the Journal-Lancet, 1913.

This is a small book of 127 pages which sets forth the modern views of public health, and is exceedingly interesting in many parts for general information and special information to the dentist. We can do no better than make several quotations from the work, which will indicate its value. Dr. Hill, the author, has had a great number of years' experience in public health in Minnesota, and has now come to Ontario to take charge of the public htalth district of London. There are many important parts to this book that tvery dentist should read. For examples:—

THE OLD PRINCIPLES AND THE NEW.

THE REVOLUTION.

"The statement that there is a 'New Public Health' may shock those who, although familiar with recent changes in scientific thought, yet have not fully realized what those changes mean; but the shock will be far greater to those who have not appreciated that changes were going on.

"The purpose of the writer is to formulate for both groups, the unconscious progressive and the unconscious conservative, a brief statement of the essential principles of modern official public-health work. To those who may feel skeptical as to the fairness of this exposition, the writings of Chapin, the great American pioneer of modern public health, of E. O. Jordan, and of M. N. Baker, may be offered as bearing directly upon these questions, while the whole of modern technical public-health literature may be offered as indirect evidence.

"The old principles have merged gradually into the new, in keeping with the experiments, observations, and conclusions of many investigators in many individual sciences related to general public health. Within official public-health circles, bacteriology, clinical observation and mathematics have furnished most of the reconstruction. The bacteriologist, the epidemiologist, and the vital statistician, sometimes working together, more often alone, in the dark and even at cross purposes, have nevertheless all reached the same point, and to-day each finds his co-workers beside him. Much of the work done has consisted in clearing away the fallacies built up by tradition, but construction-work has gone on also, and it is now possible to formulate the results.

"The essential change is this: The old public health was concerned with the environment, the new is concerned with the individual. The old sought the sources of infectious disease in the surroundings of man; the new finds them in man himself.

"The old public health sought these sources in the air, in the water, in the earth, in the climate and topography of localities, in the temperature of soils at four and six feet deep, in the rise and fall of ground-waters; it failed because it sought them, very painstakingly and exhaustively, it is true, in every place and in every thing *where they were not.*

"The new public health seeks these sources—and finds them—amongst those infective persons (or animals) whose excreta enter the bodies of other persons.

"The old public health failed to find the sources of infection; it also failed in most instances to find the routes of transmission. It is true that public water-supplies were detected as at times transmitting infection; but milk was hardly suspected twenty years ago, and flies, suggested in 1887, were not seriously considered until the Spanish-American war; mouth-spray and hands have been only recently recognized as important. On the other hand, dirty clothes, bad smells, damp cellars, leaky plumbing, dust, foul air, rank vegetation, swamps, stagnant pools, certain soils, smoke, garbage, manure, dead animals, in fact everything physically, sensorially, esthetically or psychically objectionable, were lumped together as 'unsanitary' without much distinction of 'source' or 'route,' and were regarded as a sort of general 'cause of disease' to be condemned, wherever found, 'for fear of epidemics.'

THE OLD TEACHINGS.

"It was taught that infectious diseases 'generated' in the foul, ill-smelling, unventilated, sunless hovels of the slums. In the vogue of those days, 'the slum-dwellers live like pigs, and thereby invoke the coming of smallpox, scarlet fever, typhoid fever, diphtheria.' When these diseases invaded the home of the well-to-do, where this explanation was not seemly, a pinhole leak in some plumbing fixture accounted amply for diphtheria; rotten potatoes, forgotten in a dark corner of the cellar, for typhoid fever; scarlet fever was traced to a letter from a friend who had had the disease months before; smallpox to unpacking books used by a patient a quarter of a century previously; manure piles gave rise to cholera; and dampness to malaria, which was not recognized as transmissible at all. Yellow fever originated in impure water and was directly transmitted from person to person—a typical example of intense direct contagion; tuberculosis was non-infectious and hereditary; bubonic plague was banished from the Egyptian Cairo 'simply by improving the ventilation of the city' (!)

"Remedial and preventive measures, based on such beliefs in the omnipotence of environment, naturally sought to remodel the lives and immediate home surroundings of the whole population to conform with a vast array of alleged 'sanitary laws of health.' Yet he who seeks for a scientific demonstration of the relations existing between disobedience of these 'sanitary laws' on the one hand, and the incidence of disease and death on the other, will find only a 'twilight zone' in which move vague shadows of traditional fear, shadows which, on probing, fade mistily away.

"The New Public Health is not worried by elaborate theoretical possibilities, but concerns itself earnestly with practical probabilities. The occasional, unusual, bizarre routes of infection in the one per cent. of cases, do not distract its attention from the usual, practically constant, simple, ordinary routes concerned in the ninety-nine per cent. Its main postulate is that the routes of infection are simply the routes of infected bodily discharges, which, again, are identical with the routes of ordinary uninfected discharges in ordinary life.

"The old style 'sanitary inspector' was expected to, and usually did, 'condemn' everything in sight, from the garbage-pail at the back door to the plumbing in the bath-room. But disease continued, because he was condemning, as a rule, so far as health was concerned, things largely 'incompetent, irrelevant, and immaterial.' What availed it that the garbage-pail was emptied every day or a vent-pipe placed on the bath-water waste-trap, if the milkman delivered scarlet-fever infected milk at the door, or an unrecognized case of measles sat next the children at school?

"The New Public Health sees in the garbage-pail merely a place where flies are fed and, possibly, bred. But the flies cannot carry infection *if infected discharges are not accessible to them.* 'Defective plumbing,' such a nightmare twenty years ago, has been conclusively shown to have nothing to do with disease-generation or disease-propagation whatever, unless perchance there be actual gross leakage of infected sewage. The unventilated front parlor could not produce tuberculosis in a hundred years; diphtheria does not develop from the family well; and typhoid fever in sand or clay soils is but seldom properly traceable to that source, either. The modern public health man cares nothing, so far as restriction of disease and death is concerned, for the dirty back yard or the damp cellar in themselves, but only as they may enter into the transmission of infected discharges. Then, at once, they become of vital importance. The sanitary inspection of the modern sanitarian, so far as relates to infection, begins and usually ends with the search for (a) the infected individual; (b) the routes of spread of infection from that individual; (c) the routes of spread of the ordinary excreta of ordinary uninfected individuals to the mouths of their ordinary associates in ordinary life. These latter are sought for, not because of danger from such uninfected discharges, but rather because infected discharges, introduced into and following the same well-beaten paths, will necessarily reach the same mouths. To locate all the infective persons and to guard all their discharges would be wholly sufficient, but since this cannot always be done perfectly, it is well to guard also the routes which unlocated infection may take.

ENVIRONMENT.

"Has environment, then, nothing to do with infectious diseases? Environment acts in two ways: First, unequivocally and without reserve, such environments as permit or encourage or, still worse, necessitate the exchange of human excreta in ordinary life, contribute in the long run to the spread of disease since they insure a similar exchange of infected excreta so soon as the latter are introduced. Let us take one environmental evil, overcrowding, as an example. Overcrowding, if combined with lack of discipline and order, and lack of facilities for washing, especially for the washing of hands, contributes to the spread of infectious diseases; but not in itself, nor at all, unless infection be introduced into the community. Then overcrowding, because it tends to insure exchange of human excreta, tends also to insure that the infection will spread rapidly and extensively. But overcrowding, if the overcrowded be disciplined, intelligent, and take proper precautions to avoid exchange of excreta, does not necessitate the spread of infection, even if it be introduced. On the other hand, infection may spread, and frequently does, without overcrowding, if the essential factor of such spread exist, i.e., the transmission of infected excreta.

"Second. Environments that are bad from a physiological standpoint (bad for the body, regarded as a delicate biological machine) are often held to act in spreading infection indirectly by 'depressing vitality' to an extent which makes infection, if received, more likely to develop (and if it develop, more successful in injuring the body). It must be said, however, that the evidence on this point, except perhaps that relating to tuberculosis and pneumonia, is very slight. It is a debatable question whether or not overcrowding 'depresses vitality' in the direction of increasing susceptibility to infectious diseases, whatever its effects may be in encouraging 'general debility.' It is a very debatable question whether or not 'poor ventilation' to which the effects of overcrowding are often attributed, can or does 'depress vitality' in the direction of lessening resistance to infectious diseases, whatever bad effects it may have on mental vigor or physical activity. It is true that there is evidence that such environments as lead to extremes (beyond the limits of compensatory adjustments by the body forces) of mal-nutrition, of temperature, of fatigue, and of alcoholism, probably may have an effect in insuring the development of infection, which under better conditions might be negatived by the body forces. Especially may these forms of bad physiological environment be influential when the dose of infection is small, infrequent, or low in virulence. But starvation, unsuitable temperature, fatigue, alcoholism, alone or together, cannot induce infection, nor will the converse conditions, alone or together, offset the effects of infection when the dose is large or frequently repeated or of high virulence."

The sources of infectious diseases—in this he says: "Infectious diseases are infectious because they are due to the growth, in the body, of minute animal or vegetable forms (germs), the transmissibility of these germs from body to body being the sole explanation why these diseases are 'catching.'

"Whenever in the body germs develop, they leave it chiefly in the discharges, or by routes of the discharges, of the nose and throat, bladder, or bowel, i.e., from the main orifices of the body.

"The discharges infect another person practically only when that person takes the discharges, in some form, into the mouth or nose, except in trachoma and the veneral diseases.

"Outside the body disease germs do not multiply in nature, except perhaps rarely, and very temporarily, in milk, water, or similar fluids. In general, even typhoid bacilli disappear from water supplies within two weeks, without evident multiplication. If introduced into milk, most infectious-disease germs die out as the milk becomes acid, generally in a day or two. Infectious-disease germs are rarely found in garbage, and they quickly die out if deliberately added. Practical modern health recognizes, therefore, that the bulk of most of the infections are derived directly, or almost directly, from infected persons, not much from infected things, except water, milk, food and flies. The danger of the general environment of an infected person is therefore small. The things in his neighborhood need little consideration, except those very immediate about him and directly infected by his discharges, such as bedclothes, personal cloths, towels, eating utensils and other material objects that may receive, and retain for a time fresh, most discharges. If attention be efficiently directed to infected persons and their discharges, the general surroundings may be safely ignored except in the rarest instances."

In discussing the routes of infection, he says: "Things succeed in conveying infection only somewhat directly from the infector to the infectee, and practically only during the limited period when the germs are still fresh and moist." This statement is especially interesting to patients who are having dental operations made. In another place the author states clearly that practically all infections come through the mouth and the public should give special attention to this portal of infection. Here is a statement which would rather surprise some: "If we would give half as much effort to tuberculosis, which we understand, as we have given to ventilation, which we do not understand, tuberculosis would be largely stamped out." Below are the rules given in public school, which we quote in full:—

"THE RULES OF PREVENTION IN SCHOOLS."

1. Exclude from school all infectious persons, thus excluding all infectious discharges.

2. Since infectious persons may enter school at times despite the greatest vigilance, restrict, so far as possible, the scattering of any discharge of any person at any time in school. (This will also train the children to restrict their discharges out of school and in after-life).

(a) Mouth discharges are transferred directly to and taken directly from drinking cups, towels, pencils, chewing-gum, whistles, etc. Mouth, nose, bladder and bowel discharges are transferred directly to hands many times daily; therefore—

Provide individual drinking cups, individual towels, individual pencils, individual modeling-sand, etc. There should be a sign in every school: "Wash your hands after every visit to the toilet."

(b) Sputum (spit) or other discharges, deposited on floors, sidewalks, etc., are picked up by shoes and so carried into homes. When handling shoes (putting on, taking off, etc.), discharges are transferred to hands, which go to mouths, or touch things that go to mouths. Therefore—

Avoid depositing discharges,—sputum, etc.,—on floors, sidewalks, or elsewhere where other people may step on them.

(c) Mouth-spray is thrown out in talking, singing, coughing, sneezing, etc., therefore—

Avoid throwing mouth-spray into other people's faces by avoiding close face-to-face conversations, face-to-face recitations, face-to-face singing-exercises, etc. Cough, sneeze, etc., into a handkerchief always.

(d) The air of a schoolroom in use necessarily receives mouth-spray into it in talking, reciting, etc.

(e) Bladder and bowel discharge are carried by flies when flies can get at them. During early autumn and late spring or summer sessions, flies may carry these discharges from toilets to children's lunches, etc., therefore—

Make toilet-vaults fly-proof. Provide springs or weights to automatically close toilet doors, and fly-screens for toilet-windows.

(f) Three things destroy comfort and success in school-work. Temperature too high; atmosphere too dry; air not in motion. Also no child can work well in a poorly lighted room; but do not imagine that good lighting, good heating, and good ventilation will prevent spread of infection if infectious persons gain entrance. No school is a sanitary school if the children exchange their discharges without restriction; but only those schools where infectious persons are watched for and excluded are safe schools, therefore—

Note daily the general state of health of each child. No child who shows any decided change from the usual for that child, especially fever, headache, sore throat, stomach-ache, or general dumpishness, should attend school until seen by a physician. This rule permits early detection of infectious children. It also excludes children who should be excluded for their own good, even if non-infectious.

(g) Children showing defective vision, hearing, breathing, etc., should be referred to the principal, superintendent, or school board, for action.

Having heard so much about the fly, here is an interesting paragraph: "No person energetic enough to advocate the abolition of the fly should hesitate a moment to advocate the far simpler, smaller, easier, and far more important work of abolishing those germs that alone can make the fly a danger."

There is a section on the transmission of diseases by contact, which is very interesting to every person, but especially to the dentist; to give any conception of this we are compelled to quote the full section: "Mouth discharges are exchanged in the form of mouth-spray, sputum and smears on various things, but chiefly by smears on hands.

"Mouth spray consists of tiny, often microscopic, drops of liquid from the mouth, thrown out in sneezing, coughing, shouting, singing and speaking, but not in quiet breathing. The larger ones can be seen, if watched for, and they can be felt falling upon the face in face-to-face conversation. Talk, or sing, or shout, or cough, or sneeze against a mirror two feet distant and count the drops that strike it. Then picture to yourself what happens at 'teas' and 'sociables'; at meals, with lively conversation going on; at school; at church. Think also of what happens when the cooks or waiters talk while preparing food, cough while laying tables, or sneeze while wiping dishes.

"This distribution of mouth-spray cannot be prevented unless all wear masks, as modern surgeons do when operating.

"But exchange of mouth-spray may be avoided somewhat by avoiding close face-to-face conversations, as by sitting side by side or far apart; by coughing or sneezing always into a handkerchief, etc. Often, of course, the cough or sneeze comes too quickly or the hands are already full. It is true that the head may be turned aside; but often this spares the person in front at the expense of others, and, while coughing and sneezing into the hand prevents the mouth-spray from flying wide, the spray goes to the hand and the hand itself passes it on to the other person later.

"There is no practical method of avoiding all mouth-sprays of associates, except not to have associated; but the amount of exchange may be diminished by the above precautions.

"Sputum, through the spitting habit, falls upon floors, steps, sidewalks. That these deposits dry and blow about as dust is the least of the dangers, especially out of doors, for sunlight and drying disable most disease germs. Sputum follows a much more important route leading to mouths, and this route is by way of shoes, directly into houses. There wiped off on carpets, while it is still fresh and moist,—while the germs in it are still alive. This route is by way of shoes ,directly into houses. There wiped off on carpets, it awaits the creeping baby; it smears itself on the baby's fingers; and he carries it directly into his mouth. Also, in removing shoes, the owner of the shoes uses his fingers, which, just like the baby's, enter the mouth unwashed. The value of anti-spitting ordinances thus becomes apparent.

"But after all, hands are the great route of exchange, and hands furnish the great route for bladder and bowel discharges, as well as both nose and mouth.

"From birth to death those universal tools, our hands, go to our mouths incessantly; from birth to death we use them for every purpose also. Hands encounter all the discharges of body many times a day, and if not scrupulously washed on every such occasion, they carry these discharges to everything they touch, including other hands, which go to other mouths. The very handkerchiefs we advocate to cough or sneeze or blow our noses into, transfer these same discharges to our fingers, the next time that we use them.

"Then we shake hands with others, or feel the baby's new tooth. Visits to toilets, unless followed at once by careful handwashing, mean similar transfer of the toilet discharges as well, particularly amongst children, who, remember, form half the population.

"The common drinking cup and the common drinking pail are bad because they help to exchange mouth-discharges; the roller towel is worse, especially when used for half-washed hands, because then it helps to exchange all the bodily discharges; but the unwashed hands themselves are worst of all, because the discharges they carry are undiluted and fresh and moist and warm. When strangers enter a household, they add, through mouth-spray and hands, their discharges to the general household stock; and, due to this, harvesting help, threshing crews, etc., introduce infectious disease into numerous rural families and communities every year.

"With the purview of the private citizen at home, discharges are also exchanged somewhat through things soiled by mouth-spray and hands, as well as directly. Thus are contaminated dishes in laying the tables, bread, cake, etc., also pillow cases and sheets which are soiled by mouth or other discharges from the body. The list of the things which may carry such discharges is too long for itemizing here; but, in general, such things do not form really very important routes to transfer, except when the discharges are considerable in quantity and while the discharges are fresh and moist. Once dried on clothing, mouth-spray, for instance, is not readily set free, and if it is dry, infection, if present, dies out with fair rapidity. Just as the main public routes of discharges from the community to the family are public water supplies, public food supplies, public milk supplies, and public outdoor flies, so the main private routes within the family, apart from mouth-spray, sputum and hands, are private water supplies, private food supplies, private milk supplies and private indoor flies. Public supplies may or may not bring discharges with them to the family; once they enter the family, they pretty surely receive them from the family itself. So also with the private supplies of the same things: the family well may or may not be dosed with the family discharges; the family drinking pail or pitcher almost always is. The family cow may or may not contribute discharges to the family milk pail, but the family milker practically always does; and later, within the family, the family milk pitcher receives the family mouth-spray. The family food, before and even after cooking, is subject to similar contaminations. The family flies moving from the outdoor toilet, unless it be fly-proof, or from indoor spittoons or slops to food, aid in the same exchange.

"Knowing these dangers is half the battle won. Against infection of public routes,—public water supplies, public food supplies, public outdoor flies, and public milk supplies,—the private citizen should not need precautions, for these the community itself should guard. But if he need them ,the private citizen has against such public routes two powerful weapons: (a) exclusion from his premises of the infected route, and (b) cooking. Foods are, of course, usually cooked, even in ordinary life; water may be boiled, milk pasteurized, and if flies cannot be excluded, the food they contaminate can be rejected or cooked again.

"The public routes of infection are not difficult for the citizen to guard against, however onerous that guarding may be: the real difficulty is with the private routes, the routes of contact that carry infection within the family and also within the school, the office, the workshop, the factory. We, individually or collectively, may abolish in time the common drinking-cup and common roller towel, but no one ca never abolish mouth-spray or hands.

"It is true that by education we may greatly affect personal conduct, but to leave the abolition of infection in ordinary life to the personal conduct of all sorts of people, half of them children, would be as wise as to trust the destruction of infection in a water-borne typhoid outbreak to the boiling of the water by the private citizens.

"All health officers know that adults in large proportion will not, and the children cannot, boil the water. Moreover, the law in Minnesota now recognizes that the community has not right to supply water of such a kind that the consumer must protect himself against it. The principle should be extended, so that the community is held responsible for infection carried by any public route,—food, milk, and flies,—as well as by public water. Some day the equally logical step should follow,—the holding of the community responsible for all infectious diseases, by whatever routes they travel, including contact. The community, thanks to modern science, can abolish the sources of all infectious diseases; and once the sources are abolished, the diseases, being nonexistent, cannot travel by any route, even by contact.

"The simple fact is that the private citizen in his own home can protect himself against public routes of discharges as just outlined and from the family discharges to some extent; but the moment he leaves home and enters into relations with the general public, his individual control is at an end. He cannot guard, generally he cannot even ascertain, the sources or routes of the water, milk, food or flies he must encounter. Above all, he cannot guard the sources or routes of discharges furnished by the persons he necessarily meets. His children go to school, compelled directly by the law to do so, and there they share discharges which no personal defense through conduct can wholly avoid. He goes himself to work, compelled directly by the law to do so, and there he shares discharges which he can little or not at all control. Only the community can exclude infection from the public routes of discharges, water, milk, food, and flies; but also only the community can exclude infection from the private routes of discharges grouped under 'contact.'

"Of course, the exchange of discharges already outlined, however inevitable, is harmless unless and until infected discharges enter into the exchange. The chances of encountering infected discharges can be approximated somewhat from the supposition that daily there goes at large, unknown, about one infective person in each 500 of the population. Hence he who would defend himself from infection by his habitual personal conduct toward his associates must avoid the harmless discharges of 499 uninfected persons in order to avoid the harmful discharges of one unknown infected person. (This estimate is necessarily a guess, and it does not include the veneral infections).

"The great weakness of the personal defense through conduct is this: The precise moment it is most needed is the precise moment that it generally fails. In the first place, the mouth-spray of the ordinary well person is not half so abundant or so widely scattered as that of the case of tuberculosis, of measles, of whooping cough or of influenza, for these are just the diseases in which coughing and sneezing are prominent symptoms. The bowel-discharges of the ordinary well person are not half as likely to be disseminated as those of the typhoid or dysentery case, for these are just the diseases in which frequent abundant liquid stools, often involuntary, occur. Again, the discharges of the well person are handled chiefly by that well person himself; the discharges of the sick must often be handled by associates unused to performing such services for others. Finally, exactly as green troops forget under fire all their parade-ground drill, trip over their own feet, and fire into the ground or at the sun, so the citizen, however carefully he may have practiced a well-thought-out system of avoiding discharges in ordinary life, goes all to pieces in the flurry when his child develops, say scarlet fever. Of course it is true that green troops soon recover their parade-ground drill, even in the face of the enemy; but they cannot do what seasoned troops can do, and the non-medical citizen can seldom protect himself in the face of infection as the trained contagious-disease nurse does, the physican, or the epidemiologist. Nevertheless, if he has previously known, and practiced even crudely, the necessary precautions, he is in a much better position to defend himself."

Here is a very interesting paragraph which puts the matter of the relation of cleanliness to infection:—

"It is a fatal fallacy to believe in 'general cleanliness' as a defence against infection. It is not the 'general cleanliness' of surroundings that prevents infectious diseases; it is the '*specific* cleanliness' of freedom from infected discharges. Scrubbed floors, bright pans, neatness and order do not necessarily involve, usually do not imply, hands free of discharges; they cannot stop mouth-spray. A gorgeous uniform no more shows ability to shoot than does 'general cleanliness' show ability to avoid infection. It is not visible dirt that hurts,—mud, ashes, coal-dust,—but the usually invisible discharges in mouth-spray and on hands, and even these only when laden with infection."

It has been found in the United States schools that the teaching of physiology and hygiene is taken up in the higher grades in the school, when only about 5 per cent. of the children reach these grades. In this way 95 per cent. get no instruction. It has often been said at dental society meetings that the public should be educated by a dentist in his daily practice and contact with his patients. We have often pointed out the fallacy of this statement with only about 15 to 25 per cent. of the people ever visit a dentist in this connection. We are glad to make the following quotations, which illustrate the views of Dr. Hill on this subject and show the wisdom of the dentist in Canada in having instruction given to teachers and children in our public schools:—

"It is often said that practising physicians should teach health to the public. In one sense this is true. Physicians represent medicine, and medicine deals with disease, its cure, and its prevention. But practising engineers might as well be drafted to teach geometry as practising physicians to teach personal hygiene. Physicians dealing with their own patients, or even lecturing or writing on these subjects do much good. Such work, however, is but a drop in the bucket, reaching only a fraction of the public and generally just that fraction that needs it the least. There are over 2,000 practising physicians in Minnesota. They have not time, training, organization, or authority for the sort of teaching that will really reach all citizens; the public school system has all four and 15,000 teachers to do it with.

"Medicine must furnish the facts that are to be taught, but it is quite impossible that practising physicians should do the teaching."

JOHN HUNTER AND ODONTOLOGY

John Hunter and Odontology, by J. F. Colyer, L.R.C.P., M.D.C.S., L.D.S.; Dental Surgeon to the Royal Dental Hospital of London and to the Charing Cross Hospital; Examiner in Dental Surgery, Royal College of Surgeons of England; Hon. Curator Odontological Collection of the Museum of the Royal College of Surgeons of England. Illustrated. London: Claudius Ash, Sons & Co., Ltd., Broad Street, Golden Square, W., England, 1913.

We have received, through the kindness of Claudius Ash & Sons, a most beautiful bound book prepared by Dr. J. G. Colyer, which shows the work of John Hunter in connection with "Odontology." This book shows the Hunter specimens and really places the work of Hunter before the profession in a manner worthy of the author and the publishers; the engravings are beautifully made and the text is excellently prepared and carefully revised; a dental library without this work is very incomplete. It shows a source from which much of our present knowledge of dentistry comes. The method of presenting the subject is broader and better conceived than many of our modern methods; the pathology of the teeth shows there was a fair understanding of the progress of dental caries even in Hunter's time. He says: "It almost always begins externally in a small part of the body of the tooth, and commonly appears first as an opaque white spot. This is owing to the enamel losing its regular and crystallized texture, and being reduced to a state of powder, from the attraction of cohesion being destroyed, which produces similar effects to those of powdered crystal. When this has crumbled away the bony part of the tooth is exposed; and when the disease has attacked this part, it generally appears like a dark brown speck. Sometimes, however, there is no change of color, and therefore the disease is not observable until it has made a considerable hole in the tooth. The dead part is generally at first round, but not always, its particular figure depending more on the place where it begins than on any other circumstance. It is often observed on the hollow parts of the grinding surface of the molars, and there looks like a crack filled with a very black substance. In the incisors the disease usually begins pretty near the neck of the tooth, and the scooping goes on enlarging the cavity, commonly across the same part of the tooth, which almost divides it into two. When such a diseased tooth gives way, the mischief is occasioned by its body breaking off." The cause of the disease was, however, a mystery to Hunter. He says: "A progress of the disease might be retarded by excising the caries part and while fillings were inserted largely for the purpose of keeping things out of the cavity."

According to a daily paper of recent issue, there is new evidence that there existed in prehistoric times a high degree of skill in applying metallic restorations to defective teeth. In the province of Esmeraldas, in northwestern Ecuador, Professor Marshall Saville, who occupies the chair of American Archæology at Columbia University, has excavated a number of skulls belonging to a pre-Incan tribe of South American Indians. Professor Saville states that many skulls contain teeth crowned with gold cusps and with gold fillings equal to the best work of modern dentists. Many of the teeth, especially the front ones, are ornamented with gold filigree work in the form of stars and half-moons.—*Dental Record.*

At the French Academy of Sciences M. R. Robinson, of Paris, recently made a communication on the perfect preservation of the teeth in seven male donkeys aged between 10 and 14 years, and the author concludes that a physiological relation exists between the genital glands and the dental system. These animals, which had been used in the experiments of Professor Lannelongue, were insusceptible of sexual excitement. Their food was hay. On the other hand, a young cryptorchid *griffon*, a very salacious beast, upon which the author had made a necropsy, had lost all its teeth when quite young. Toothache is said to occur in young masturbators, and it appears that true eunuchs have fine teeth. The old belief of the effect of gestation upon the teeth may thus be true. As a result of his clinical observations, M. Robinson is satisfied that in diabetes and tabes it is through the intermediary of the genital glands that the teeth become worn, carious, or simply fall out. But, he asks, does there exist a reciprocal effect of the dental system on the physiology of the genital glands? In two cases the author has noted that the removal or the rapid loss of many teeth together induces gradual atrophy of the testicles and complete impotence. In the case, therefore, of one who loses in an unusual manner many teeth, the genital organs should, he thinks, be examined, and, if necessary, the ovaries in case of chronic salpingitis, or the testicles in tumors or testicular tuberculosis should be removed. Further, rational opotherapy should remedy premature decay of the teeth. The communication (says the *Lancet*) was suggestive rather than convincing.—*Dental Record.*

It has been stated recently that water charged with radium emanation has an "extraordinary" efficacy in cases of pyorrhœa and loosening of the teeth. At the exhibition connected with the International Medical Congress, an apparatus for supplying radio-active water was shown, the active strength of the water supplied being guaranteed for a minimum period of ten years. The method of treatment is by simply syringing and rinsing; good results after a few weeks' treatment are testified to by several German practitioners of high reputation.—*Dental Record.*

DENTAL ANATOMY AND PHYSIOLOGY.

An introduction to *Dental Anatomy and Physiology*, descriptive and applied by Arthur Hopewell-Smith, L.R.C.P., London; M.R.C.S., England; L.D.S., England; John Tomes prizeman of the Royal College of Surgeons of England; Lecturer on Dental Anatomy and Physiology, Dental Surgeon, and Demonstrator of Practical Dental Histology at the Royal Dental Hospital of London; Member of the Faculty of Medicine of the University of London; Fellow of the Zoological Society of London; Membre Honoraire De La Societe Odontologique De France; Korresp. Mitglied des Central-vereins Duetschuer Zahnarzte, etc. With 430 new and original illustrations, including a frontispiece in photogravure and five plates. Lea & Febiger, Philadelphia and New York, 1913.

This work is a notable addition to dental literature. It is especially adapted to giving a broad and general view of the subject of Dental Anatomy. It does not pretend to be descriptive of the surfaces of the human teeth. It is intended to set before the reader the relationship the teeth bear to general physiology. The subject of evolution is graphically set forth. The implantation and replacement of teeth is discussed.

The name of the author is sufficient guarantee for the completeness and accuracy of the various chapters under discussion. The book is beautifully illustrated, splendidly printed and bound. While it cannot be used as a general text-book, it contains just the kind of information which every student should be required to have.

NO PERMANENT TEETH.

Reported by B. E. Brownlee, D.D.S., L.D.S., Winnipeg, Man.

Some time ago a girl of about seventeen years came in to have some skiagraphs made to see if I could locate any signs of a permanent tooth. The temporary teeth, with a few exceptions, were in place, some having been lost through action of caries. But the X-ray failed to show any sign of a single permanent tooth. In other words, there is a complete absence of the second dentition. What could possibly have caused this? The only feature of the history of the case so far as I could learn, that seemed to be in any way related, was the fact that during the last months of pregnancy the mother was subjected to a severe fright and much alarmed, as one of the other children was very severely burned or scalded. Could that accident have been responsible for the condition?

Dominion Dental Journal

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VOL. XXV. TORONTO, SEPTEMBER 15, 1913. No. 9.

OPENING OF LAVAL DENTAL SCHOOL

The opening of the new building of the Dental Department of Laval University will take place on October 14th, 1913. The Prime Minister of Quebec, Sir Lomer Gouin, will make the formal opening. This event marks great progress in the dental profession in the Province of Quebec. Too much praise cannot be given the dentists of the Province of Quebec for their courage in undertaking to make accommodation for two hundred students in the most modern building known to the dental profession at the present time. Laval extends a cordial invitation to the dentists of the Dominion to be present at the opening ceremony. THE DOMINION DENTAL JOURNAL extends its congratulations to the dentists of Montreal for having established in it an up-to-date dental school which gives all of its instructions in the French language.

New Building Dental Department Laval University Montreal, Que.

OPENING OF DENTAL SCHOOLS

With the approach of the first of October opens all of the Dental Schools in the Dominion of Canada. The Dental Department of Dalhousie University, Halifax, N.S., Dean, Dr. Frank Woodbury; the Laval University, Dental Department, Montreal, Que., Dean, Dr. Eudore Dubeau; the McGill University, Dental Department, Montreal, Que., Dean, Dr. A. W. Thornton; the Royal College of Dental Surgeons, Toronto, Ontario, Dean, Dr. J. B. Willmott. It is expected that in the near future there will be added the Dental Department of the University of Manitoba, Winnipeg, to the four schools mentioned.

THE PANAMA PACIFIC DENTAL CONGRESS

The work of promoting the Panama Pacific Dental Congress is progressing in a most satisfactory manner, and the Committee of Organization is pleased to report that up to date in thirty-eight States of the United States Executive Committees have been appointed to co-operate with it in advancing the interests of the Congress.

Seventeen foreign states and countries and the island possessions of the United States have taken similar action, and the appointment of like committees in other states and countries is now pending.

It is hoped that within the next three or four months every state and country in the world, where dental organizations are known to exist, will be represented by an Executive Committee, the duties of which will be to promote an interest in the Congress and secure memberships and contributions to the program.

Instructions defining the duties and authority of these committees will shortly be sent to each of them.

The Committee is in almost daily receipt of letters from all parts of the world promising support and attendance, and from present indications the Congress will be the greatest yet held by the dental profession. Dr. H. A. Frederick, of San Francisco, has been elected to fill a vacancy in the Board of Directors, and the Committee of Organization, in order to promote the interests of the Congress and avoid a repetition of the unpleasant controversies and contests for office which disturbed the organization and opening of the Fourth International Dental Congress, has effected a permanent organization with the following officers:—

President—Dr. Frank L. Platt, San Francisco, Cal.
Vice-President—Dr. Charles M. Benbrook, Los Angeles, Cal.
Treasurer—Dr. Fred G. Baird, San Francisco, Cal.
Secretary—Dr. Arthur M. Flood, San Francisco, Cal.

Executive Committee, including the officers named above—Dr. J. Loran Pease, Oakland, Cal.; Dr. H. G. Chappel, Oakland, Cal.; Dr. R. B. Giffen, Sacramento, Cal.; Dr. A. M. Barker, San Jose, Cal.; Dr. Arthur W. Chance, Portland, Ore.; Dr. G. T. Williams, Seattle, Wash.; Dr. G. F. Stiehl, Salt Lake City, Utah; Dr. B. M. Brookfield, Idaho Falls, Idaho; Dr. H. H. Wilson, Phoenix, Ariz.; Dr. H. A. Frederick, San Francisco, Cal.; Dr. W. A. L. Knowles, San Francisco, Cal.

Nearly $13,000.00 has now been subscribed to the promotion fund, the Southern California Dental Association at its recent meeting having subscribed $1,000.00, and its members, as individuals, nearly $1,500.00 more.

The Pacific Coast States, aside from California, represented on the Board of Directors, are doing their part, and the success of the Congress, so far as can be judged at the present time, seems positively assured.

DALHOUSIE UNIVERSITY, DENTAL DEPARTMENT.

The sixth session of the Faculty of Dentistry of Dalhousie University, Halifax, opened on Sept. 3rd with an encouraging registration of students. There is a field for a dental school in the Maritime Provinces, and the conditions exist at Halifax which make a good one possible. All the men who have already graduated are taking leading positions among the young men of the profession.

The Canadian Dental Association will hold its next biannual meeting in the city of Winnipeg in the early part of July, 1914.

Editorial Notes

DENTISTS ARE INTERESTED IN THE MILITIA IN MANITOBA.

Reported by Major H. A. Croll, 12th M.D., Souris, Man., for the Dominion Dental Journal.

The interest taken in military work in Western Canada is shown by the following list of dentists of the West who were at Sewell Camp from June 23rd to July 4th, 1913:—Major C. N. Schnarr, Second in Command, 98th Regiment; Major H. A. Croll, Adjutant, 12th Manitoba Dragoons; Capt. W. T. Hackett, Dental Surgeon, A. M. C.; Capt. G. L. Cameron, 27th Light Horse; Lieut. D. P. Stratton, 20th Border Horse; Lieut. A. L. Johnston, Quarter Master; Lieut. J. R. Duff, 99th Manitoba Rangers; Lieut. W. H. Gilroy, 90th Regiment, L. B. D.; Lieut. B. J. Curry, Dental Surgeon, A. M. C.; Lieut. J. P. Coglan, No. 11 Can. Army Service Corps.

TORONTO DENTAL SOCIETY.

The Executive Committee of the Toronto Dental Society are to be congratulated for having secured Dr. Kirk and Dr. Goslee for two of their meetings during the coming year. A further announcement will appear later.

The committee in charge of raising the money to equip the Municipal Clinic, which is now open for patients under the charge of Dr. J. A. Bothwell, wishes to say that there is still a balance due to the manufacturers of $37.00. There was a general invitation given to the profession in Toronto to subscribe to this fund; about $350.00 has been subscribed, and we feel sure that those who have not yet subscribed will gladly send the Treasurer sufficient to close the account.

W. H. DOHERTY, Chairman.
A. E. WEBSTER, Treasurer,
3 College Street.

The dental firm of J. E. Wilkinson & Co. has notified its creditors to meet to take such action as may seem best for the closing up of the business. It is a regrettable thing that a firm with fully fifteen years of successful business behind it should at this time be forced to close its doors. We extend our sympathy to its founder and business manager, Dr. J. E. Wilkinson.

Dominion
Dental Journal

VOL. XXV. TORONTO, OCTOBER 15, 1913. No. 10.

Original Communications

OFFICE MANAGEMENT

M. H. GARVIN, D.D.S., L.D.S., WINNIPEG, MAN.

Read before Dental Society of Western Canada, Calgary, July, 1913.

Some men are practicing dentistry to-day because their mothers wanted them to, and others because of some mere chance of fortune. Some are practicing it because they think they can make more money out of it than any other calling they might pursue, and usually live to learn otherwise. Some have the public service idea vividly before their minds. Some are practicing it because they look upon it as a means of obtaining the necessary capital to invest in outside interests and constantly live in the hope that at the earliest possible date they will give up the practice of dentistry altogether. I presume none are in it for the good of their health.

In the practice of our profession a few are unscrupulous, and will stoop to any level and wallow in the mire of the gutter through deceptive methods, false flashy advertisements, with an apparent disrespect for all that true professional men hold dear. However, the majority are conscientious and true and faithfully endeavor to serve their fellows according to the golden rule. Many of these are keen after improved conditions, and the possibilities for such have no limit even though they have already climbed to the higher rungs of the ladder.

If a man gives faithful service in dentistry these days in this country the time will soon come when he has in a sense more than he can do. He may raise his fees to the point of restricting his practice to the dimensions that suit his purpose, or he may improve his equipment and his business methods in such a way as to be able to do much more work and incidentally he may raise his fees as well. The writer is in dentistry because he likes it. He likes it better than any other profession or business of which he has any knowledge. His ambitions are not to make enough money that he may be able to retire at the earliest moment, many years before a strong healthy man should give up work, but rather to continue in the harness, practicing under increasingly pleasant surroundings in an office ever better equipped to serve the public. President Elliott, of Harvard, has said "That man is best educated who is most useful." The writer believes in a big practice, and more of it. That is, that each year should show, as far as possible, a substantial increase over the preceding one: that methods may be adopted from time to time that will make this not only possible, but assured, even though working shorter hours and taking longer holidays, both of which are not only very desirable but necessary.

A paper might be written on the methods of building up a practice outside of office management, but in this paper the discussion will be confined to "System in Office Management," and is chiefly for the man who is busy, who has really more than he can do, although the man who is not so busy may find some suggestions that will make the practice of his profession at least more interesting.

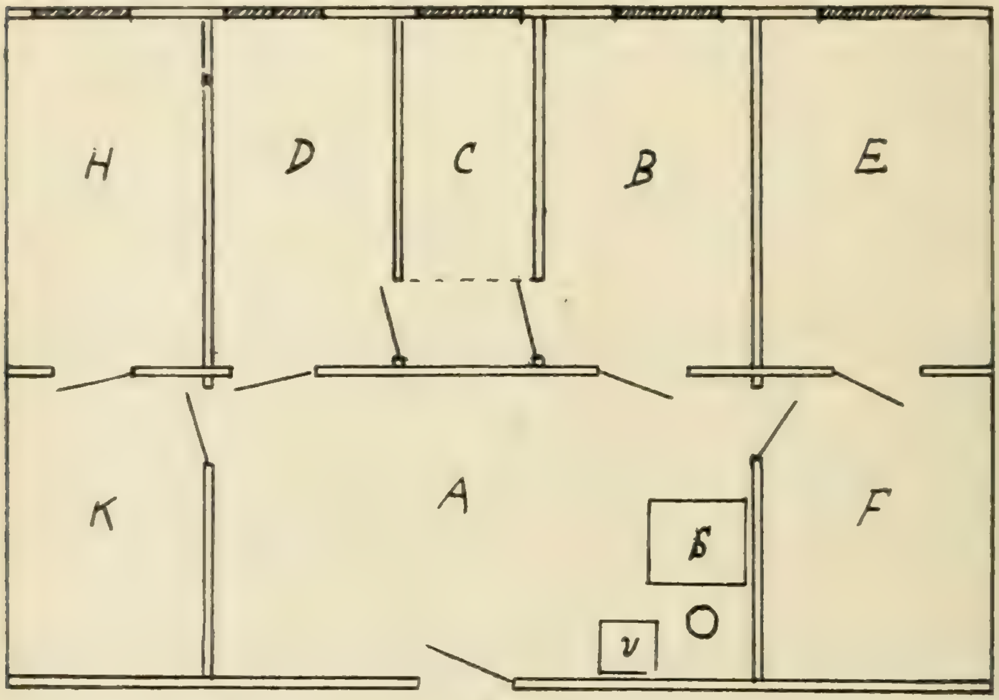


Fig. 1.

The first slide shows a diagram of an office with suggestions as to arrangement of rooms. In early practice the possession of rooms, A, B, C and D would suffice. Some find it advisable to rent room D to a physician. The writer is opposed to this plan for several reasons. Physicians send us many patients and the number of physicians who may do so is likely to be larger when one is practicing alone and not sharing an office with one of the medical fraternity. There is always less likelihood of trouble arising from patients with offensive troubles waiting around for the physician, and so making it unpleasant for one's patients. This room can be used to good purpose at the first for extracting or taking impressions, making examinations, etc., while an enamel filling is setting. It offers itself also as a private room for discussing matters which patients would not wish discussed publicly.

The smaller room, C, fitted up for a laboratory is very convenient, and can be used for soldering small pieces, casting inlays, pouring plaster, etc. The writer has found it to his advantage to have most of the mechanical work done at an outside laboratory situated not too far from the office, so that the mechanic can see certain cases in the mouths of the patients. The results obtained in this way are all that could possibly be desired, and takes a great responsibility off one's shoulders as the practice grows.

In modern practice a lady assistant is a necessity from the first. It later becomes advisable to secure the services of a graduate operating assistant who should be spoken of as a partner before the patients. Certain classes of work can be turned over to him altogether, and a large number of patients can readily be convinced that it is perfectly satisfactory to have the work thus arranged if you so advise. This spirit among one's patients will in time permit of a second assistant or a third, or as many as one wishes or is big enough to control. There is no limit to the possibilities along these lines, and while the responsibilities of management are increased the hours of actual practice may be greatly decreased, and longer vacations should be forthcoming.

Later, rooms E and F may be added and subsequently rooms H and K. The small extra reception or retiring room will be found most convenient and satisfactory. Other rooms may be added also to either end without difficulty, particularly if a corner of the building is available. Long before this a stenographer to act as secretary will be a necessity. Her desk will be at S. From here she will make all appointments, take all telephone messages and be in direct telegraphic communication with each operating room. She will signal to each operator when his next patient arrives, or when he is required at the telephone, or when there is a party to see him on professional or other business. She will keep all books, send out all accounts and letters. See that the charts for each day are in their respective cabinets, typewrite a list of the day's appointments for each operator, check up all work going and returning from the laboratory, take care of the supplies, and above all stand between the dentist and the many little annoyances which prevent him from rendering his best service at the chair.

Before passing it might be said that it is very effective to have colored lights within easy view of the operator when he is at work, which lights are to be used as signal lights to advise Dr. A. that Dr. B. wishes to consult with him about a certain case, or if an anesthetic is to be administered to indicate that all preparations on the patient had been completed.

The location of the vault and filing cabinet is indicated on the slide at V.

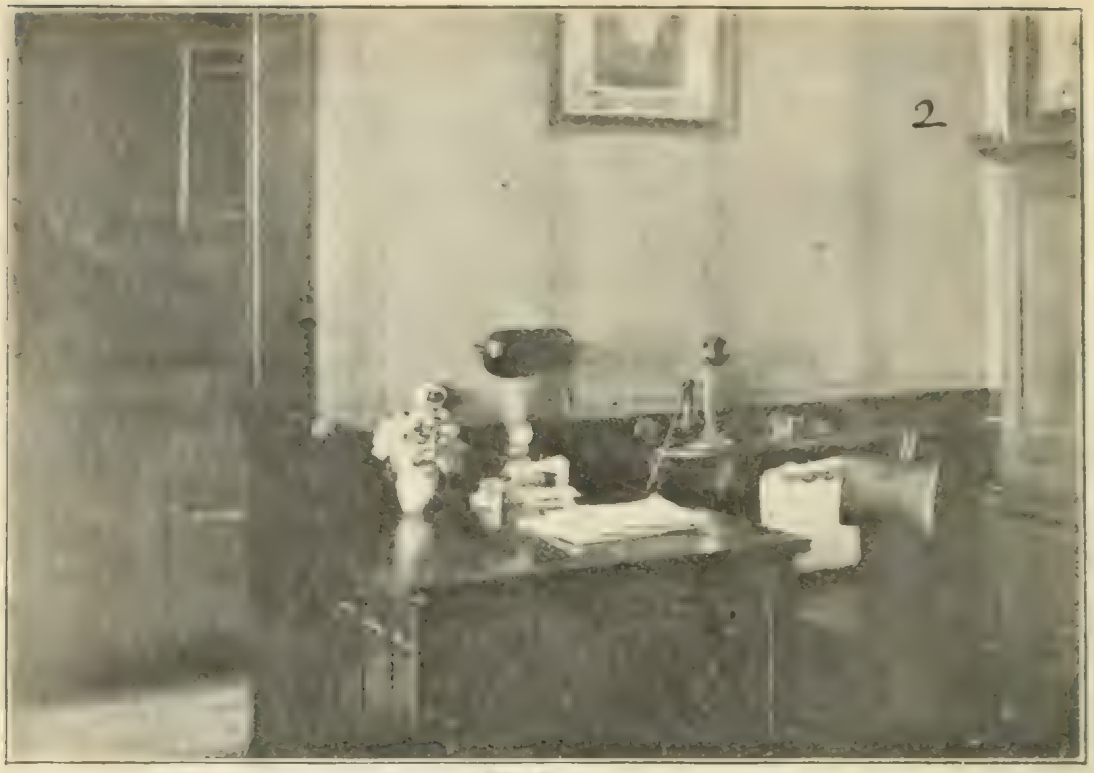


Fig. 2

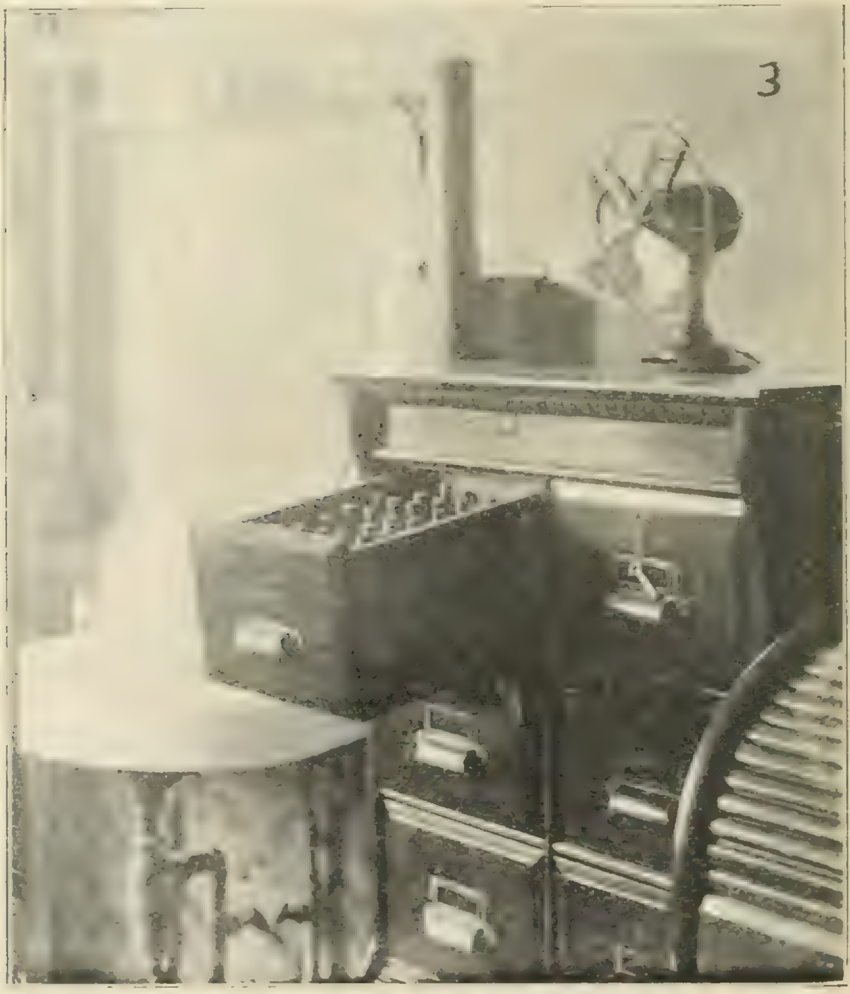


Fig. 3

Slide 2. This is a view of the secretary's corner showing relation of vault and filing cabinet to secretary's desk, the edge of vault and cabinet being seen to the right of the slide. She can reach the working charts without leaving her chair, also with little difficulty secure precious metals from the vault. On the secretary's right is a shelf on which is the telephone and telegraphic key. In the desk is the typewriter which can be used at will

Slide 3: This is a view of the supply cabinet in which the general supplies of the office may be kept. The opening drawer shows a series of test tubes fitted with corks and labelled to be used for keeping burs. From this drawer the burs are distributed by the assistant to the different cabinets.

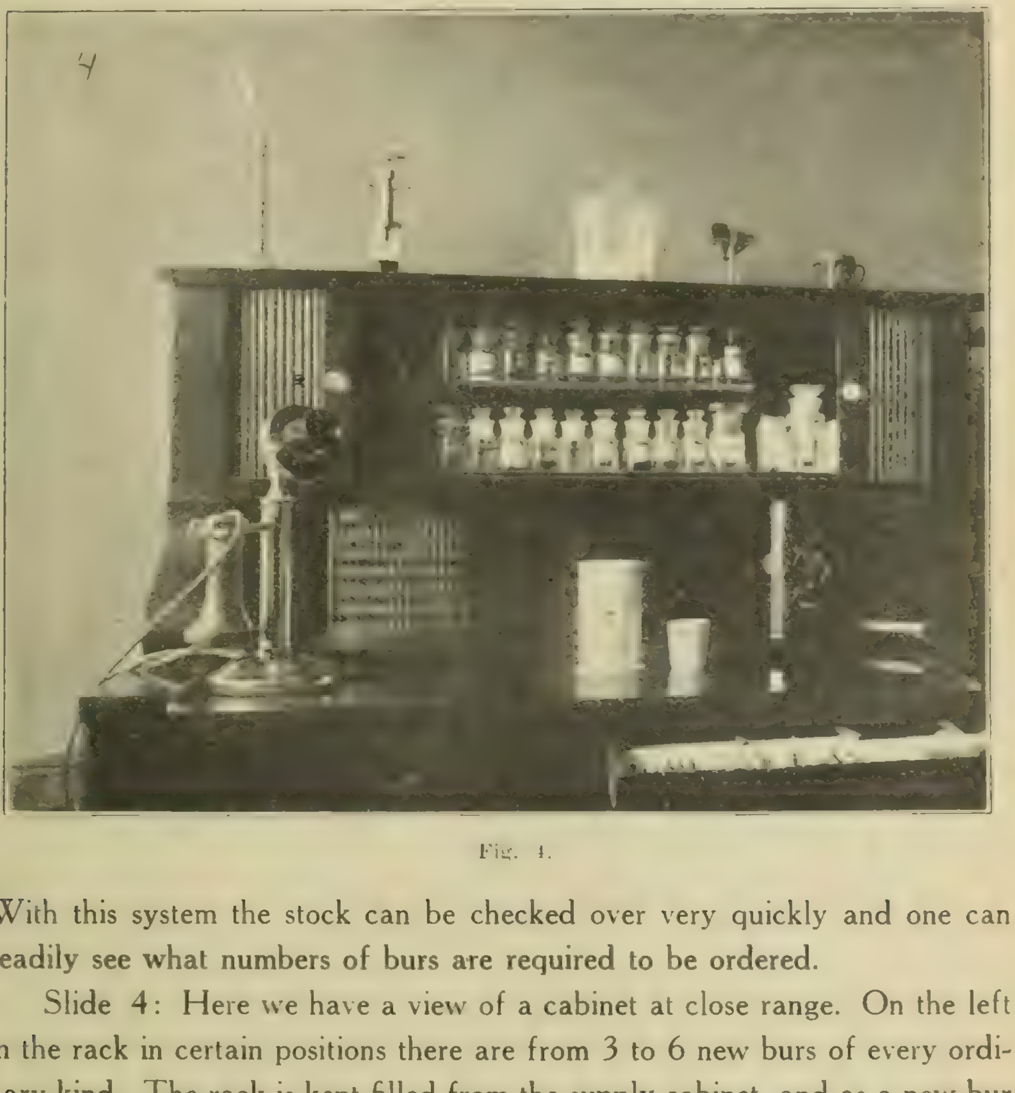


Fig. 4.

With this system the stock can be checked over very quickly and one can readily see what numbers of burs are required to be ordered.

Slide 4: Here we have a view of a cabinet at close range. On the left in the rack in certain positions there are from 3 to 6 new burs of every ordinary kind. The rack is kept filled from the supply cabinet, and as a new bur of any size can be secured at once without opening a drawer or box, much time is saved. The long shank used burs are kept in the bracket table in definite positions. The right angles are similarly treated, and as conveniently placed in the cabinet. The vessel in the centre is a pure white vase, on which a red cross has been painted, and is intended as a receptacle for used cotton rolls, disks, etc. The small jar at the side is for used burs

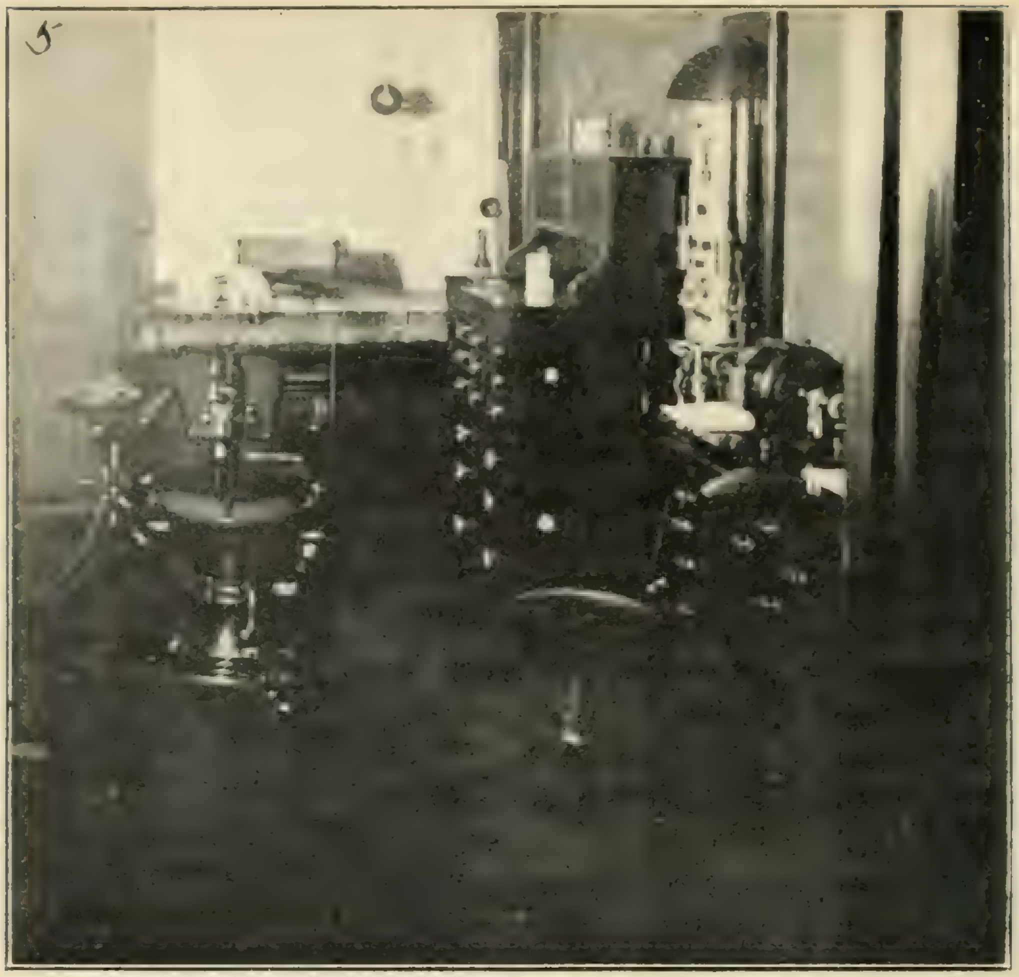


Fig. 5.

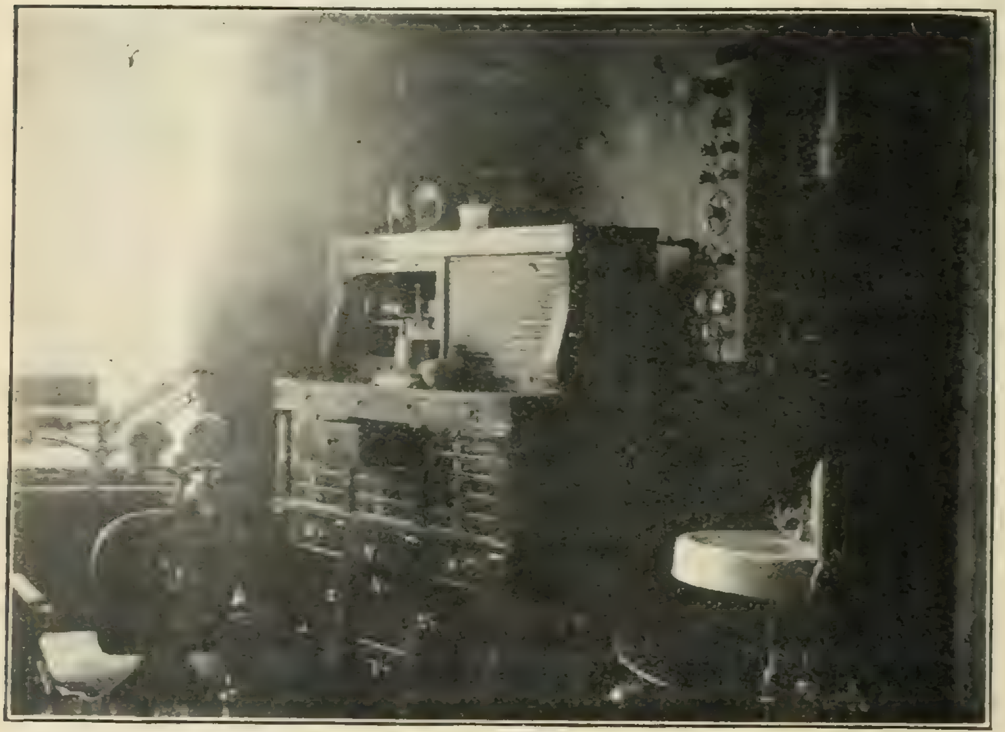


Fig. 6.

ready for sterilization. On the top of the cabinet is a bunsen kept burning and most convenient for heating wax and temporary stopping, etc.

Slide 5.—A view of the operating room is shown to illustrate the position of the furniture. On the extreme right is the mechanical bench, on the end of which is the electric sterilizer and near which is the lathe. In the canopy over the switchboard, which was made in Winnipeg from a design of the writer, there is a small lamp casting a glow through the opalescent glass in the bottom of the canopy. This not only is attractive, but one can see at a glance whether or not the current is on, and so does not pick up the engine, and start to prepare a cavity only to find that the power is off. In this room the washbasin is on the left side, which is not, however, by any means, ideal as to location.

Slide 6: In this room the washbasin is in an ideal position, close to the cabinet, and so placed that the operator can put one hand under the tap while the other is in the patient's mouth. In passing mention might be made of the linen coverings for the head rests of these chairs. These slips are made out of linen cut circular, and with a draw string so that they can be quickly adjusted, and have proved to be quite satisfactory. A strong feature in this cabinet is the dozen drug bottles arranged in the open drawer, easily accessible and arranged in holes in a metallic shelf, so that they cannot be upset.

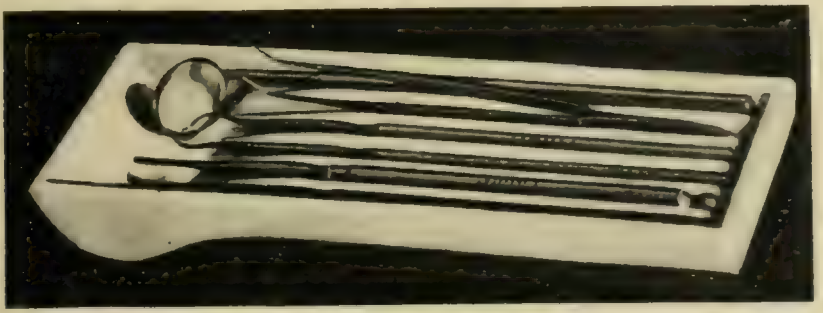


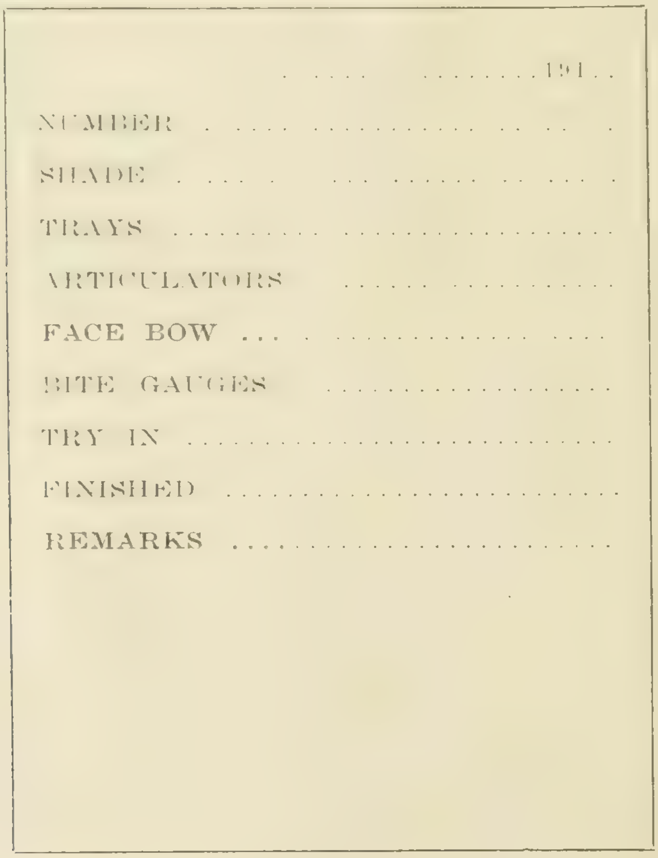
Fig. 7.

Slide 7: This is a view of an instrument tray, several of which are found in each operating room. On each tray is a mouth mirror, cotton pliers, two chisels and two excavators of such design that any ordinary cavity can be largely prepared with them. And as there are a number of these sets of instruments the operator loses no time in proceeding with another case while instruments are being sterilized.

Slide 8: This is a view of a most convenient broach holder. The handles are small and light, being made of aluminium. In these handles may be placed platinum probes with a loop on the end for carrying medicaments down into pyorrhea pockets, also apex or smooth broaches. Each style of broach should be stuck into the end of the handles with a different colored wax as to be easily distinguished. It is well, too, to have at least a couple of dozen such handles so that the assistant can roll cotton on them and keep the operator well supplied.

Fig. 8.

In passing mention might be made of the prosthetic models which were shown at the above clinic yesterday. These models are indispensable to the operator in explaining quickly to a patient the advisability of a certain type of work.



....191..

NUMBER ....

SHADE ....

TRAYS ....

ARTICULATORS ....

FACE BOW ....

BITE GAUGES ....

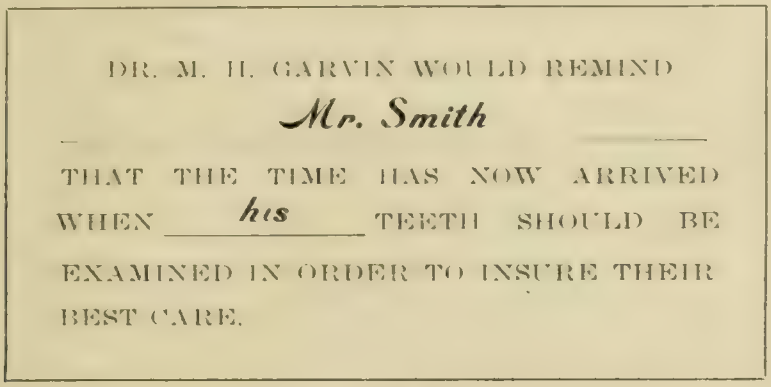
TRY IN ....

FINISHED ....

REMARKS ....

Fig. 9.

Slide 9: The slip shown in this slide is filled out in sending a case to the laboratory. This front slip has a blue back so that one gets a carbon copy of all slips sent out. These slips are in pad form, and are placed in a book similar to that used in many restaurants, there being a metal leaf to write upon. This proves an easy method for the secretary to check up all laboratory work, seeing that it is completed on time, and that all trays have been returned.



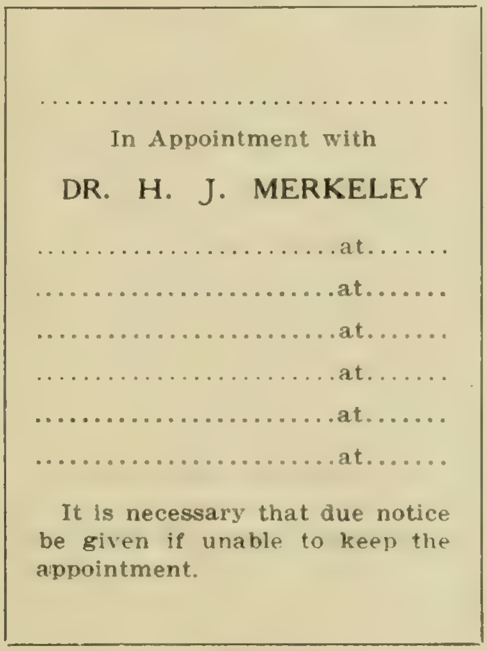
DR. M. H. GARVIN WOULD REMIND

Mr. Smith

THAT THE TIME HAS NOW ARRIVED WHEN his TEETH SHOULD BE EXAMINED IN ORDER TO INSURE THEIR BEST CARE.

Fig. 10.

Slide 10: This form of notification card suggested to the writer by the late Dr. Mathieson speaks for itself. It is simple in design, and leaves a desirable impression upon the recipient. If, when making the final entry upon the patient's chart it is advisable to see this patient again in 3 months, put a small "3" in red lead pencil opposite the entry, if 6 months put a "6," and the secretary, in copying the entry of work done in the day book, will at the same time make a record to send a notification card to the patient at the time indicated on the chart.



....

In Appointment with

DR. H. J. MERKELEY

.........................at.......

.........................at.......

.........................at.......

.........................at.......

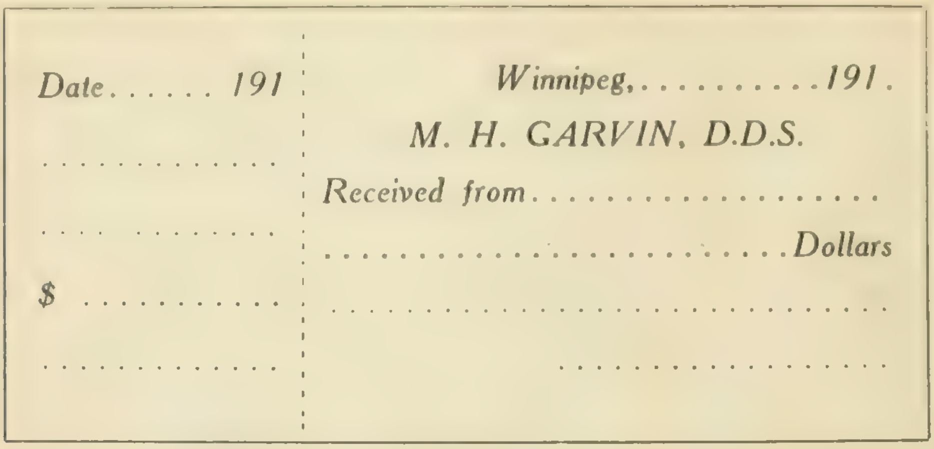
.........................at.......

.........................at.......

It is necessary that due notice be given if unable to keep the appointment.

Fig. 11.

Slide 11: This appointment card is one suggested by Dr. K. C. Campbell, of Winnipeg, and contains many admirable features, being one of the many exclusive designs found in Dr. Campbell's new and attractive suite of offices.



Date...... 191

....

....

$ ....

....

Winnipeg,..........191.

M. H. GARVIN, D.D.S.

Received from..................

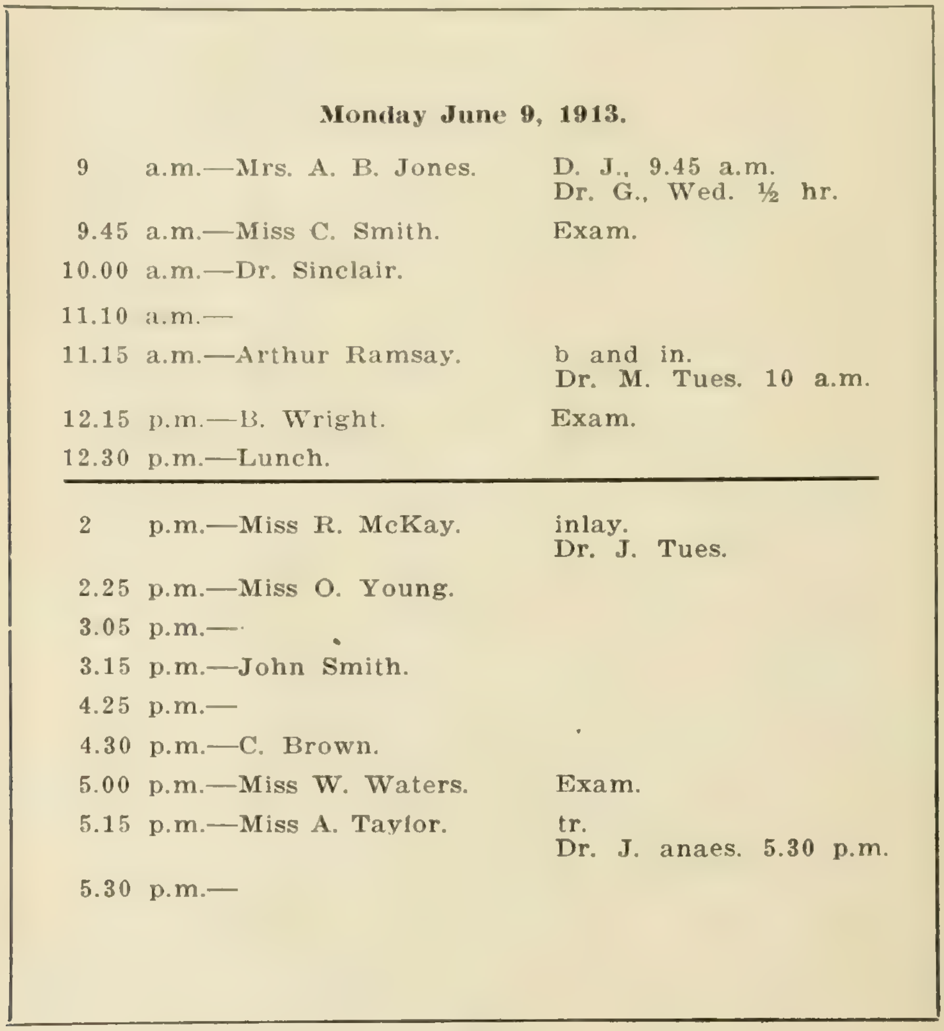
.........................*Dollars*

....

....

Fig. 12

Slide 12: Here we have a form of receipt. Note the stub which is a decided advantage. The stub should always be made out and initialed



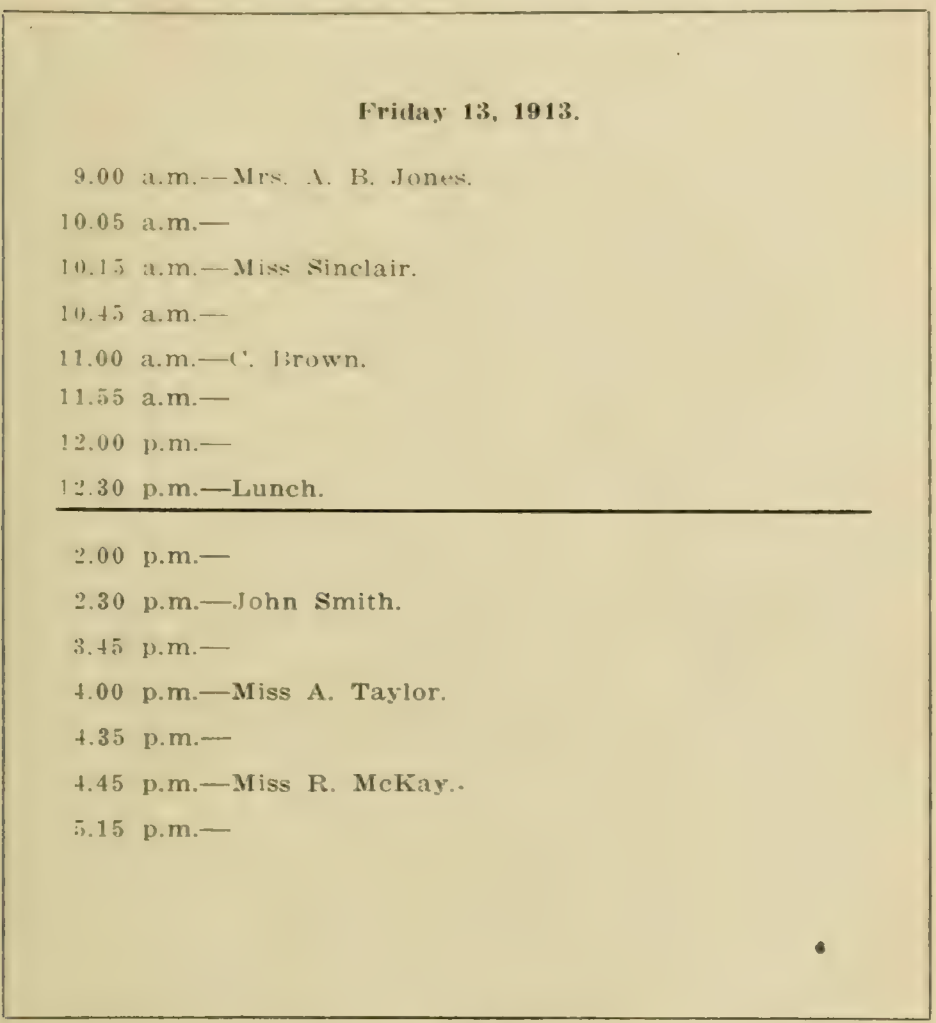
Monday June 9, 1913.

9 a.m.—Mrs. A. B. Jones.	D. J., 9.45 a.m. Dr. G., Wed. ½ hr.
9.45 a.m.—Miss C. Smith.	Exam.
10.00 a.m.—Dr. Sinclair.	
11.10 a.m.—	
11.15 a.m.—Arthur Ramsay.	b and in. Dr. M. Tues. 10 a.m.
12.15 p.m.—B. Wright.	Exam.
12.30 p.m.—Lunch.	
2 p.m.—Miss R. McKay.	inlay. Dr. J. Tues.
2.25 p.m.—Miss O. Young.	
3.05 p.m.—	
3.15 p.m.—John Smith.	
4.25 p.m.—	
4.30 p.m.—C. Brown.	
5.00 p.m.—Miss W. Waters.	Exam.
5.15 p.m.—Miss A. Taylor.	tr. Dr. J. anaes. 5.30 p.m.
5.30 p.m.—	

Fig. 13.

by the one making it out. A cheque received by mail in payment of an enclosed statement of account should be entered on the back of these stubs with the date, and initialed. Thus at the end of the month the sum of all the items on the stubs should equal the amount of cash received as indicated by the day book. A list of all cheques should be entered into a separate book at the time these cheques are deposited in the bank. In this way, if a cheque has been received and through some oversight has not been credited to the account we have an easy method of tracing up the matter.

Slide 13: The secretary typewrites a slip like this for each operator daily. With such a slip before the operator he can see at a glance what he has to do, and how long he has to do it in. It is much easier working from such a slip than from an appointment book, where the names are all crowded together. The note opposite the first name indicates that Dr. J. is to see this patient when Dr. G. is through with her, also that further time of half an hour has already been set aside for Mrs. Jones on the following Wednesday.



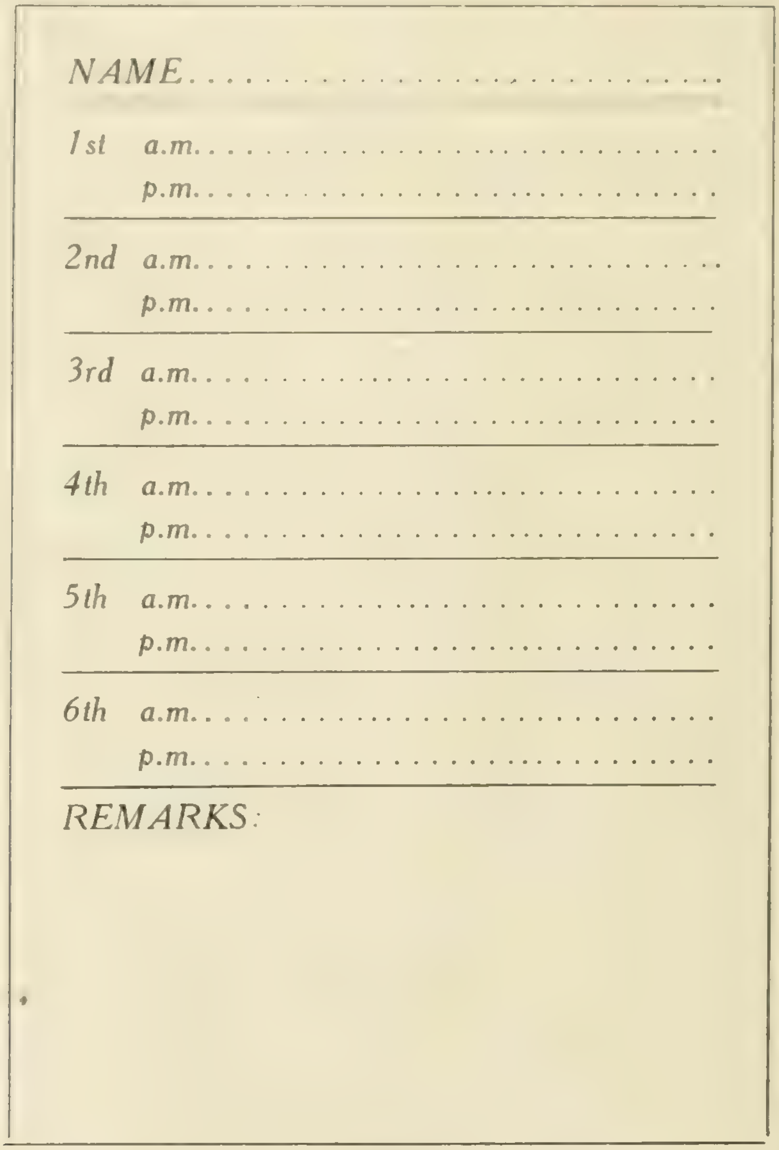
Friday 13, 1913.

9.00 a.m.—Mrs. A. B. Jones.
10.05 a.m.—
10.15 a.m.—Miss Sinclair.
10.45 a.m.—
11.00 a.m.—C. Brown.
11.55 a.m.—
12.00 p.m.—
12.30 p.m.—Lunch.

2.00 p.m.—
2.30 p.m.—John Smith.
3.45 p.m.—
4.00 p.m.—Miss A. Taylor.
4.35 p.m.—
4.45 p.m.—Miss R. McKay.
5.15 p.m.—

Fig. 14.

Slide 14: This shows a typewritten list from the appointment book some days in advance, and shows the method of making appointments in such a way as to make it practical for an assistant or secretary to make the appointments. For instance, instead of making an appointment for an hour it is made either for fifty minutes or fifty-five minutes, or for an hour and five minutes, the next appointment commencing at the quarter hour and leaving ten minutes that may be filled in for an examination. It is advisable in city practice to insist on an examination before a long appointment is made, and these ten minute spaces meet this requirement. A number of five minute spaces can also be left which are not to be filled up with any regular work or for any examination, but can be used simply to relieve pain, and the patient can be told that the doctor can see him or her for five minutes between appointments simply to relieve the pain. At this sitting an appointment may be made for proper examination.



NAME..............................

1st a.m..............................
p.m..............................

2nd a.m..............................
p.m..............................

3rd a.m..............................
p.m..............................

4th a.m..............................
p.m..............................

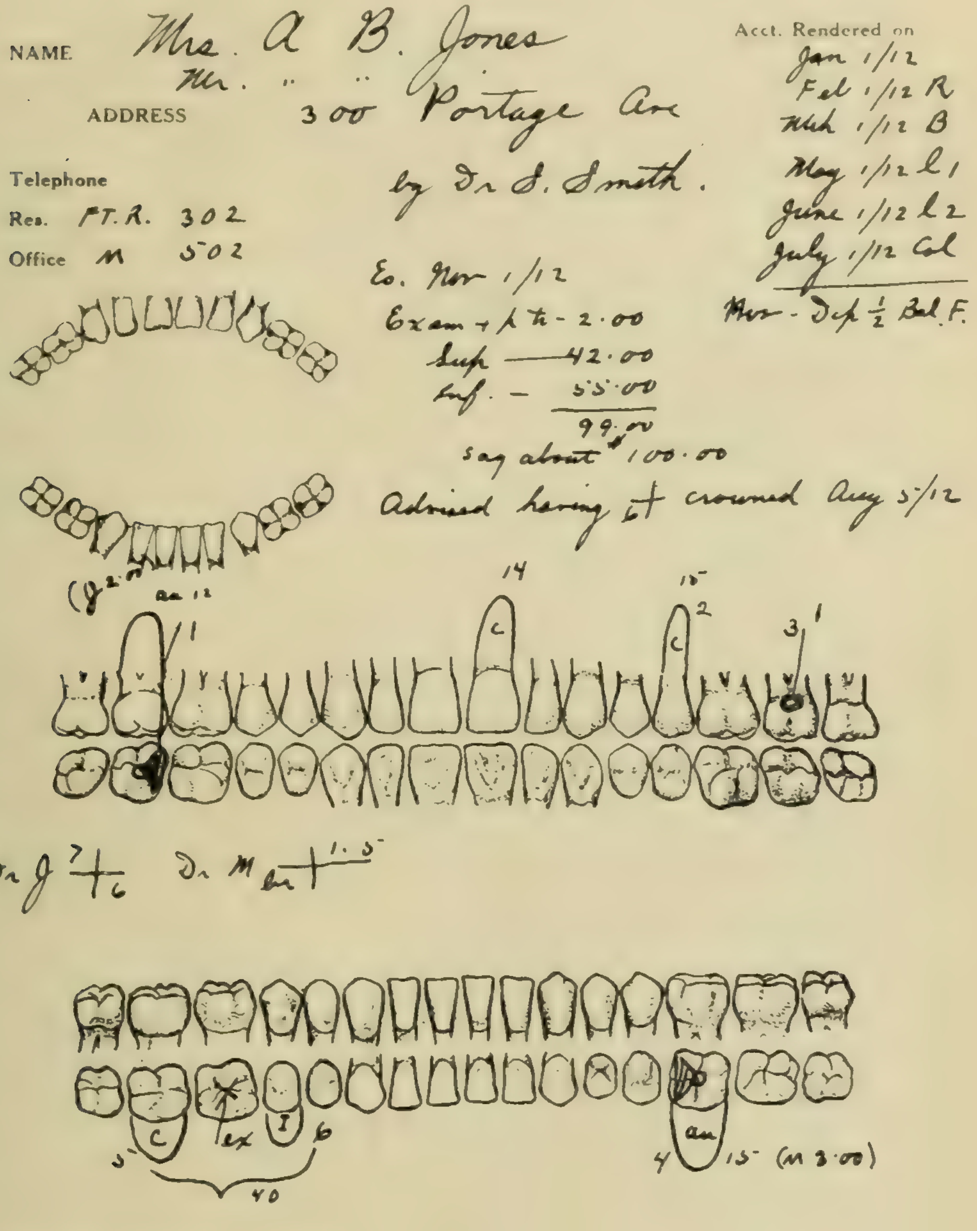
5th a.m..............................
p.m..............................

6th a.m..............................
p.m..............................

REMARKS:

Fig. 15.

Slide 15: These slips in pad form are used by the operator to indicate the number and length of appointments and their distance apart, and who the appointment is to be with. One of these slips is hurriedly made out and handed to the patient, who is at once dismissed while the assistant begins preparing for the next case. The patient takes the slip to the secretary who makes the appointment, and who does all the worrying about how it is to be arranged, and hear all the story about the sick baby or the afternoon tea, or the engagement with the dressmaker



NAME Mrs. A. B. Jones
Mr. " "
ADDRESS 300 Portage Ave
by Dr S. Smith.

Telephone
Res. FT.R. 302
Office M 502

Acct. Rendered on
Jan 1/12
Feb 1/12 R
Mch 1/12 B
May 1/12 L1
June 1/12 L2
July 1/12 Col
Nov - Dep ½ Bal. F.

Ex. Nov 1/12
Exam + x ts - 2.00
Sup — 42.00
Inf. — 55.00
99.00
say about 100.00
Advised having it crowned Aug 5/12

Dr J 7/6 Dr M 1.5

(J 2.00
am 12
1
14
C
15
2
C
3
1
C
ex
I
6
5
40
am
4
15 (M 3.00)

Fig. 16.

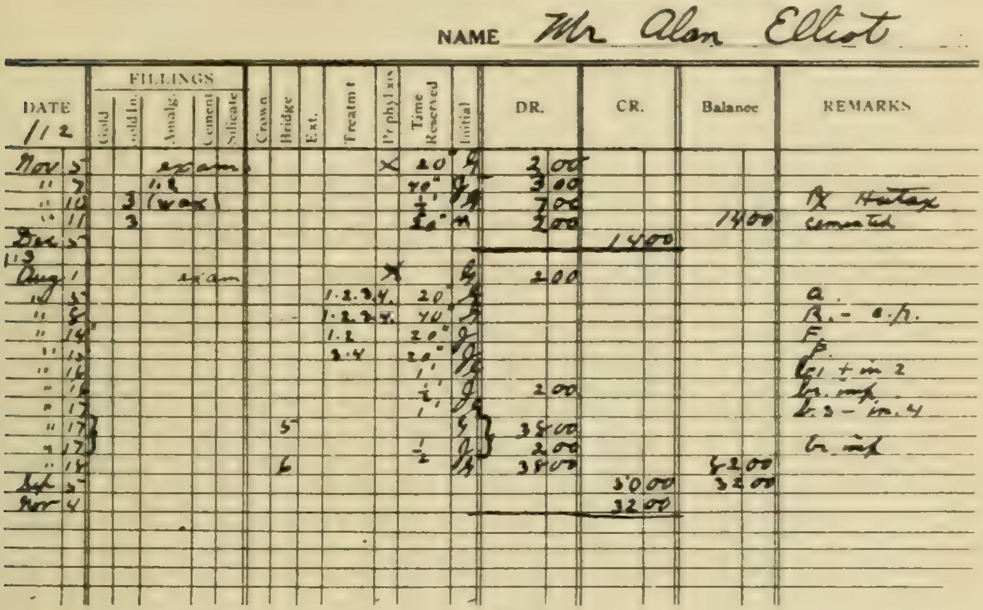
Slide 16: The marking of the charts is an important factor to be considered. It being found that the manufacturer kept constantly changing these charts and re-arranging the order of the columns so as to become quite confusing. Dr. H. J. Merkeley designed the chart shown on the screen, and it has many excellent features, particularly the other side of the chart, which will be seen on the next slide. At the top we have the patient's name, who the account is to be sent to, address, and by whom referred: to the left the telephone number; to the right when the account was rendered. A few days before the end of each month the one in charge of the accounts looks them over and indicates in this upper corner that the account is to be rendered by writing the month and year; the secretary does the rest. If an R is written after the date it is to be sent "To Account Rendered," if a B is so written it is to be sent "To Balance of Account." If C1, that letter No. 1 be sent. If C 2, that letter No. 2 be sent. If Col., that it be sent to the collectors, and so on. Photographs of these letters will be shown on the screen later. Below the telephone, to the left is a chart of the temporary teeth, and below that the diagram of the permanent teeth. This chart is made out by the secretary and placed on the cabinet before the patient reaches the operating room. Thus the operator has no chance of forgetting the name of some patient that he should well remember. The operator makes the examination, and the assistant copies it down in pencil. This can be done in cypher if desired. Dr. K. C. Campbell suggests drawing a root over a tooth that requires treatment, as in diagram, so that later one can see at a glance that the tooth has been treated. When the treatment is begun this root should be half inked in and entirely inked in when the treatment is completed. Fillings are inked in when completed so that one can see quickly what fillings are still to be done by looking at the chart. Thus the examination and the record of work is all on one chart, and presents many advantages over a separate examination pad. If an estimate is given it is written in pencil as indicated on the chart, and later can be erased. It is also indicated which part of the work is to be done by each operator, *and this fact explained to the patient at the time of examination.*

In the case of a treatment where Dr. J. treats a tooth, and prepares it for crowning and turns it over to Dr. A. for completion, Dr. J. makes an entry of his fee and initials it on the other side of the chart, but in pencil on this side opposite the tooth treated; he also makes a record of the fee already entered against this tooth, and initials it, which prevents any double entering of a fee, and every man gets credit for the work which he has done.

If an operator commits himself in regard to any plan of treatment which may or may not be followed by the patient he indicates the same on the chart. This may prove of great service later when the same question may arise again, and the patient has not forgotten the discussion while the operator has, or another operator in the same office is handling the case.

Slide 17: This is the other side of the chart. Note that the transverse lines are closer together than on most charts, allowing for a larger number of entries on one page. The vertical lines are so placed as to leave spaces of different size. In this way a larger space is left for amalgam fillings, treatment, etc., than for fillings less often used, or rather inserting in smaller numbers in one sitting. A further advantage is seen as we approach the bottom of the page, one can see at once just where the space for amalgam fillings is without running the eye up to the top of the page.

The balance column is used simply to carry the balance forward, and when the total is entered in this column, the secretary knows that the work is completed, and files the chart away from the finished charts.

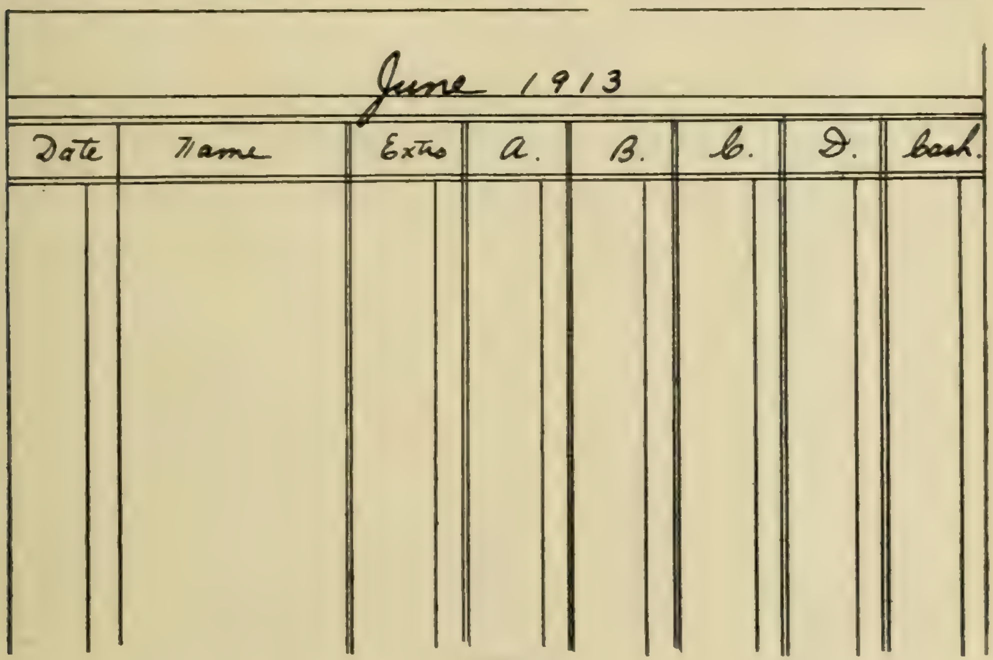


NAME Mr Alan Elliot

DATE '12		FILLINGS Gold	Gold In.	Amalg.	Cement	Silicate	Crown	Bridge	Ext.	Treatm't	Prophylaxis	Time Reserved	Initial	DR.	CR.	Balance	REMARKS
Nov	5			exam							X	20	J	2 00			
"	7			1.2								40"	J	3 00			
"	10		3	(wax)								½'	J	7 00			℞ Hutax
"	11		3									20"	M	2 00		14 00	cemented
Dec	5														14 00		
'13																	
Aug	1			exam							X		J	2 00			
"	5									1.2.3.4.		20	J				a.
"	8									1.2.3.4.		40	J				B. – o.p.
"	14									1.2		20"	J				F.
"	15									3.4		20"	J				P.
"	16											1'	J				C.1 + in 2
"	16											½'	J	2 00			In. imp.
"	17											1'	J				C.2 – in. 4
"	17							5					J	38 00			
"	17											½	J	2 00			In. imp.
"	18							6					J	38 00		82 00	
Sept	5														50 00	32 00	
Nov	4														32 00		

Fig. 17.

Where an entry has been made by more than one operator in one day the entries are bracketed to readily point out the fact to the secretary in copying the same into the day book. The letters in the remark column indicate what treatment was used, also what prescriptions were given.

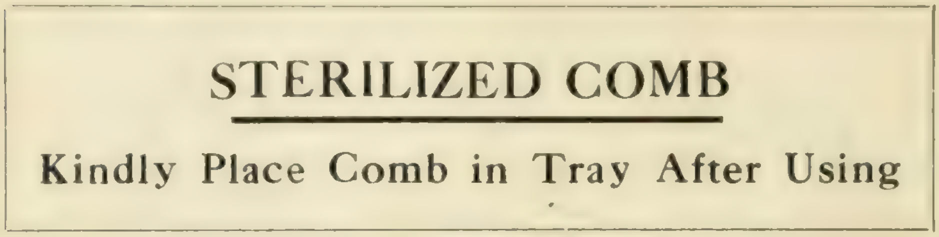


June 1913

Date	Name	Extra	A.	B.	C.	D.	Cash.

Fig. 18

Slide 18: In a book ruled as follows, the secretary copies each day the amount recorded on the charts, placing in each column the entries made by the respective operators, and in the right hand column the cash entries. The left hand column is kept for the extra entries which do not affect the volume of work done. For instance, if Dr. A. solders cusps on a band he is credited in the column with the amount asked by the mechanic for doing the same service.

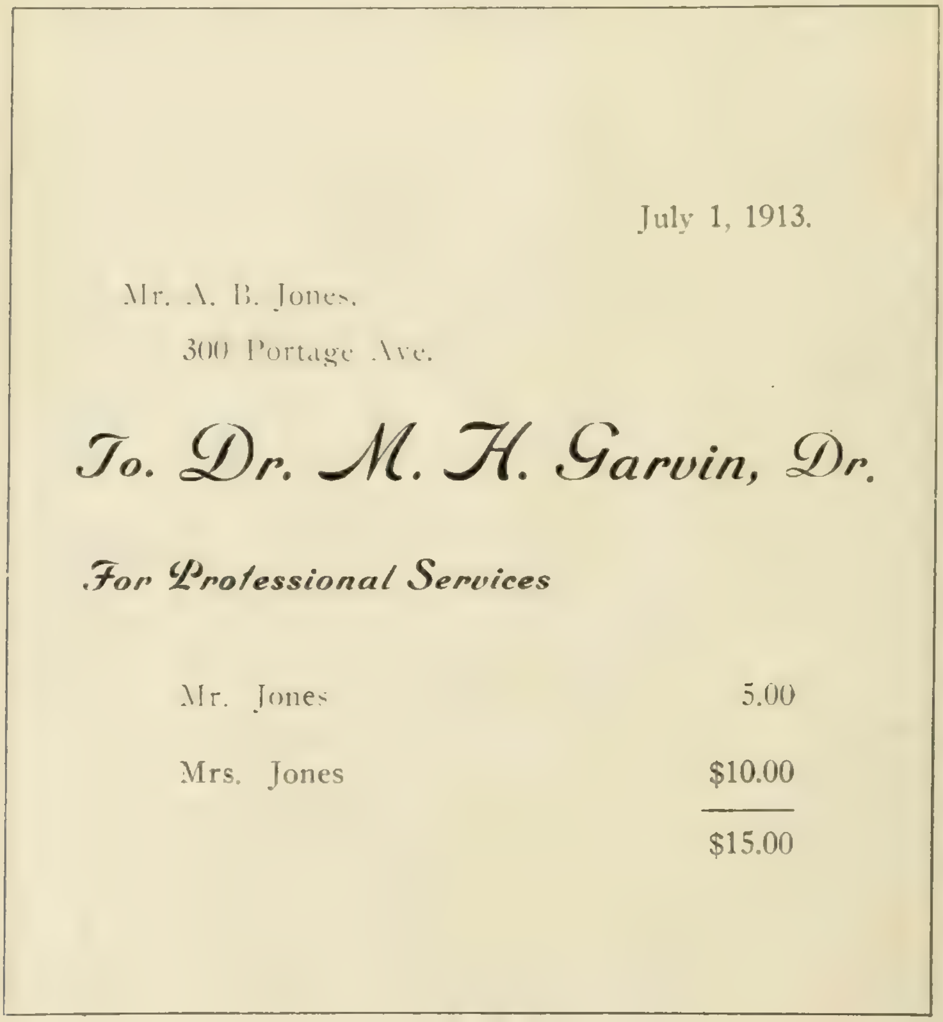


STERILIZED COMB

Kindly Place Comb in Tray After Using

Fig. 19.

Slide 19: Before passing to a brief survey of the collection problem, I would show this photograph of an envelope used to contain combs for office use, an innovation much appreciated for some years in the writer's office.



July 1, 1913.

Mr. A. B. Jones,
300 Portage Ave.

To. Dr. M. H. Garvin, Dr.

For Professional Services

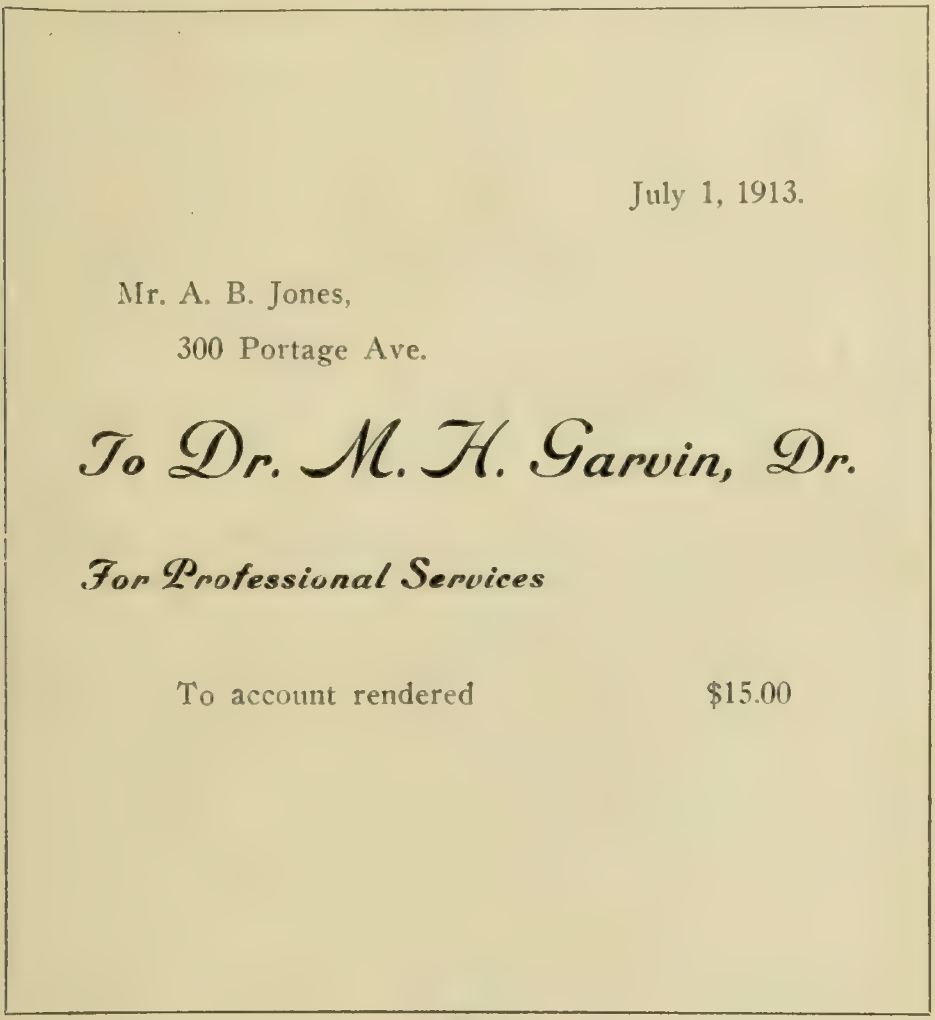
Mr. Jones	5.00
Mrs. Jones	$10.00
	$15.00

Fig. 20.

Slide 20: This is a suggestion for a statement form which may be sent out when the account is first rendered, a lithographic form on substantial paper, and of simple design, the items being typewritten. This account should reach the destination on the *first day of the month.* Many people pay their accounts by cheque once a month, and that often on the first. To be a few days late in rendering an account often means waiting a month longer for settlement.

Slide 21: Then should it be necessary to send this account a second time it should be expressed as follows: "To account rendered."

Slide 22: Later as occasion demands this letter which we shall call Letter One, may be enclosed, or some similar form of letter.



July 1, 1913.

Mr. A. B. Jones,
300 Portage Ave.

To Dr. M. H. Garvin, Dr.

For Professional Services

To account rendered	$15.00

Fig. 21.

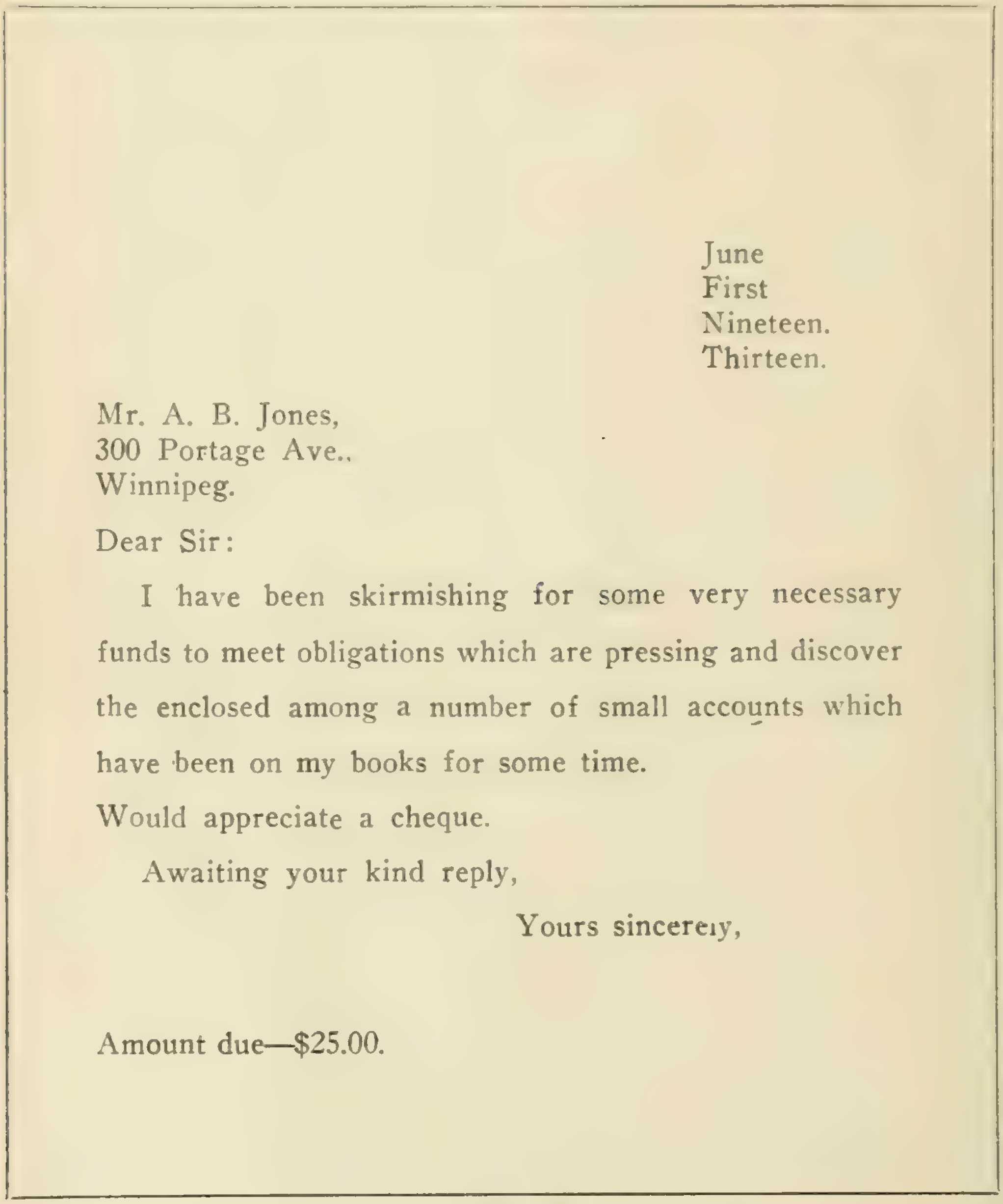
Slide 23: Following this Letter Two may be sent.

Slide 24: The late Dr. Mathieson suggests the following form, which has many excellent features, and might be used to great advantage.

Following Letter 1, in some cases it is much more effective to telephone the party stating that while you know the account is good you have a number of such accounts which have been standing for some time, and having certain obligations to meet, you would like very much if he would mail you a cheque the same day, or if not convenient, to let you have his note at 30 days or even 60 days, if preferable. Notes can be discounted or held until time of maturity, and then turned over to the bank for collection.

If a man does not respond to some one of these plans send the account to a good collector, and have it properly attended to.

In this paper I have outlined briefly the work of the secretary, and in closing would suggest a plan of work for the lady assistant. Such an assistant cannot serve you at the chair in an ideal way if she has to frequently answer the telephone, interview patients and assist in the laboratory. She will have to do this while the secretary is at lunch, and she will have time during certain types of operation in which to see that everything in the operating room is properly cared for. She will have to take charge of the laundry, see that the necessary supplies are transferred



June
First
Nineteen.
Thirteen.

Mr. A. B. Jones,
300 Portage Ave.,
Winnipeg.

Dear Sir:

I have been skirmishing for some very necessary funds to meet obligations which are pressing and discover the enclosed among a number of small accounts which have been on my books for some time.

Would appreciate a cheque.

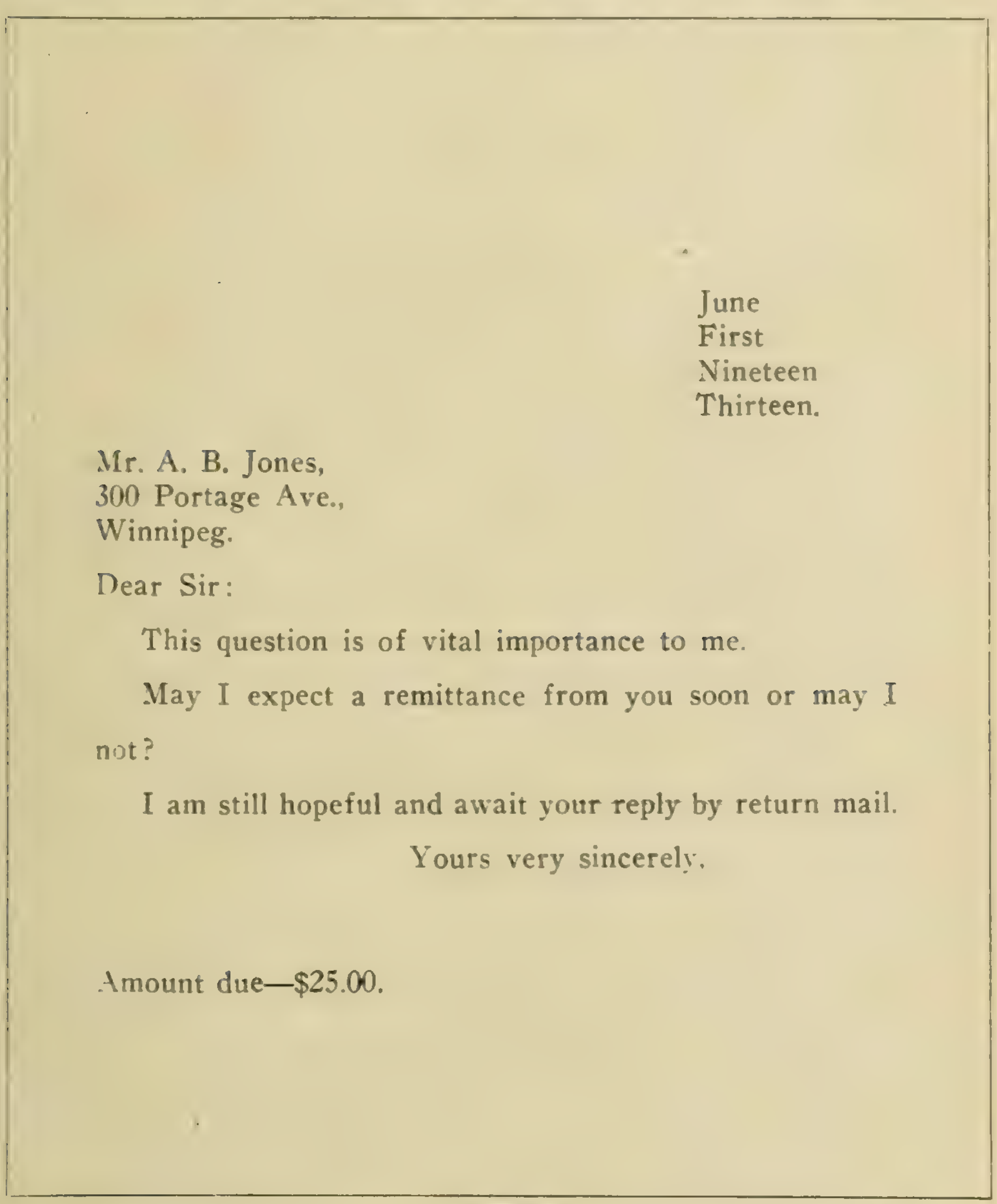
Awaiting your kind reply,

Yours sincerely,

Amount due—$25.00.

Fig. 22.

from the supply cabinet to the operating cabinet, sterilize the instruments, and saliva ejectors, assist at the switchboard, mix cements, amalgam and root dressings, place the amalgam in the carrier and hand it to the operator as he requires it, change the hand pieces in the engine, also the burrs, and stones, wash off the stones that may be smeared in grinding a tooth near the gum margin, hold the cheek and tongue away from the instrument, wrap numerous broaches with cotton, invest and cast inlays, make bands for crowns, close at hand, at the mechanical bench where she can always be ready to assist in any way possible. As stated before, she will write down the examination on the chart.



June
First
Nineteen
Thirteen.

Mr. A. B. Jones,
300 Portage Ave.,
Winnipeg.

Dear Sir:

This question is of vital importance to me.

May I expect a remittance from you soon or may I not?

I am still hopeful and await your reply by return mail.

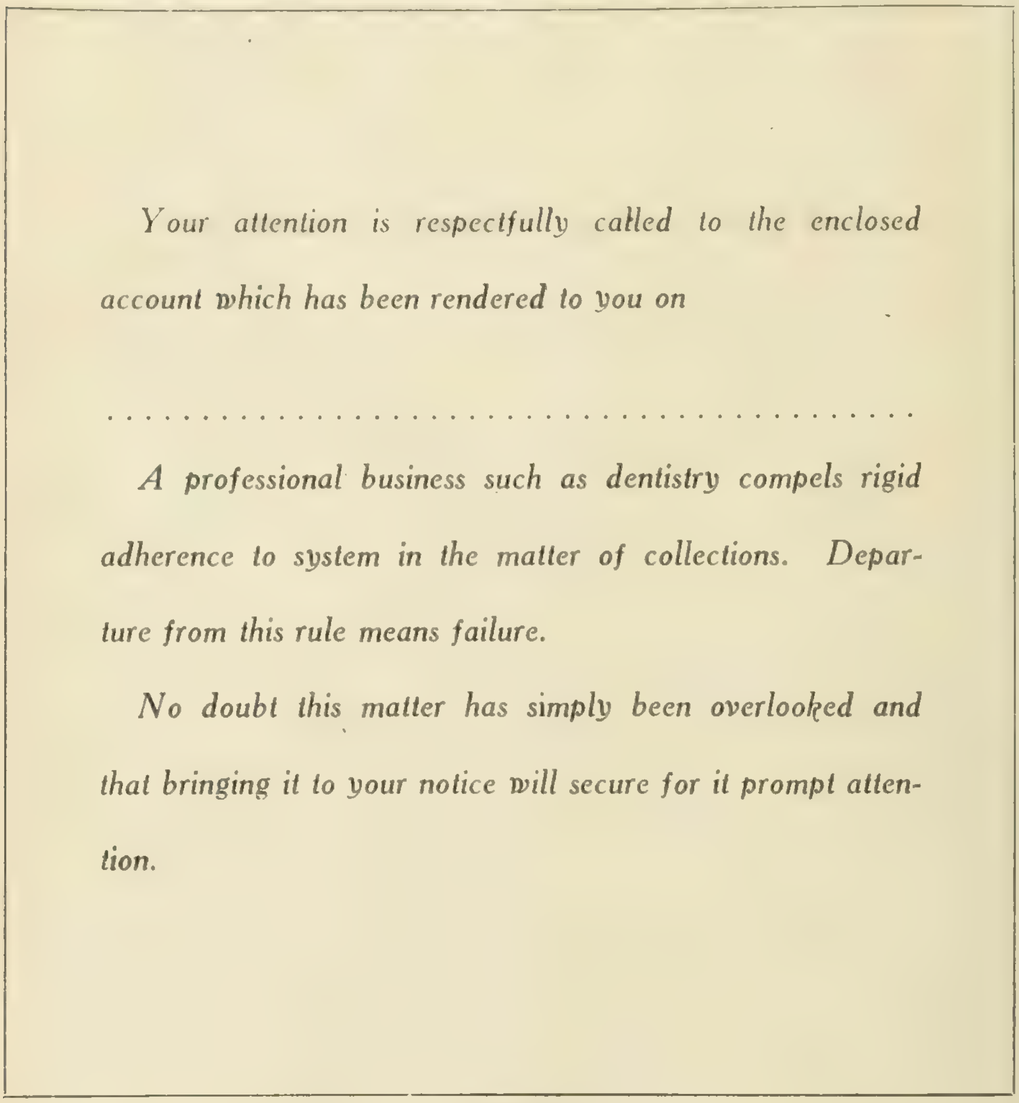
Yours very sincerely.

Amount due—$25.00.

Fig. 23.

Under such conditions as have been named a practitioner is enabled to accomplish a great deal more in a limited time than is possible without such a system, and so should secure the larger fee that such a service rendered is entitled to. The writer has always contended that if Dr. A. spends half an hour in operative procedure upon a certain gold inlay, he is entitled to a larger fee than Dr. B., who requires one hour to accomplish the same result.

In closing the writer would express the deepest regret that the man who was to open the discussion on this paper,—the man of all of us, on account of his sane judgment and wide experience, best able to throw a clear convincing light upon many of these complex questions, one beloved and respected by all who knew him, has passed away, and that so recently, even while planning to be with us at this Convention. In the death of Dr. Geo. G. Mathieson, the dental profession of Western Canada has sustained a loss which will long be felt by all.



Your attention is respectfully called to the enclosed account which has been rendered to you on

. . . .

A professional business such as dentistry compels rigid adherence to system in the matter of collections. Departure from this rule means failure.

No doubt this matter has simply been overlooked and that bringing it to your notice will secure for it prompt attention.

Fig. 24.

DISCUSSION.

DR. FRENCH: Mr. Chairman, Ladies and Gentlemen: According to the programme, my good friend Dr. Jamieson, of Edmonton, was slated to open this discussion. As he was unable to be with us to-day, I was requested to do so. In doing so, it has placed me in the position of the young Englishman, who on his wedding day was called upon to answer the toast of the bride. He had not prepared anything for the occasion, and as he rose to his feet he felt very nervous, and placing his hands on his bride's shoulder, he said, "Ladies and gentlemen, I can assure you that this thing has been thrust on me." Now there is something in office management which Dr. Garvin has presented to us, which is as important as anything else in the profession. There is a business side to our profession, as well as a professional side. The old saying that "he is all wrapped up in his work" is all very well and good, but I do not think that a man should be so much wrapped up that he is oblivious to the remuneration he should get from his work, and the quantity of work that he can do in a day. One difficulty about our profession is that we are limited to daylight work, and if we wish to accomplish as much as we can, in a day, we must have system and office management. We have been presented with many valuable suggestions, and I do not wish to go into details of criticism. There was a banquet last night that kept me up late, and I just wish to supplement a few general remarks to what Dr. Garvin has said. Professional men of to-day are looked upon as a whole as not good business men. Now that is our own fault. We overlook system in our work, and all those details which Dr. Garvin has pointed out, and which are so essential in getting through the greatest quantity of work in a day, and which do not receive the proper amount of attention from us that they should.

Another thing, in collecting our accounts, I do not believe in a man being sensitive about asking for his fee when the service is rendered. How many men are there who never render an account, and how many men allow accounts to stand over a long time with the patient—sometimes patients perfectly well able to pay their accounts in cash. Now in order to accomplish the greatest amount of work in daylight hours, they must have system along the lines presented to us to-day. If we have properly trained assistance, it will also save us a great deal of time. I believe that a man in going to his office should endeavor, as far as possible, to spend the time he is at the office at the chair,—not lose time running to the telephone or the door. In that way I am delighted to see Dr. Garvin give a paper such as he has given us to-day, and that is what I mean when I say that I consider this subject equally as important as any other subject we can discuss. Now, according to this programme, I was to open the discussion, and there was nothing said about closing it, so with congratulations to Dr. Garvin on the splendid paper he has given us, I will close, thanking you, gentlemen. (Applause.)

DR. HARWOOD: Mr. Chairman, Ladies and Gentlemen: I have only to add my little word to what Dr. French has said in congratulating the essayist on the paper he has given. Since hearing Dr. Garvin's paper

I am beginning to think that I have been living in the backwoods, and I am just a novice in regard to office management. He has certainly given me a lot of pointers, some of which I can use when I go home, and several others I will have to have a different office for, which some day I may have. All of his suggestions I do not think are applicable to a small place, such as the laboratory outside of the door and so on. But all of his suggestions are applicable practically to a general practice of dentistry. There are only a couple of things which have struck me forcibly. Several people will hear the same things, and each one will remember something the other one does not. If I comment on the things which struck me forcibly, I think I will be doing well. One thing is, if you have more than one operating room, the secretary can be very advantageously used and employed. One good thing is the telegraphic key to notify the operator that a person is waiting, or that they are wanted on the telephone, and it saves a whole lot of time. You lose a lot of time running to the telephone and to the door. I have been through that phase, and I know what Dr. French means when he refers to it. I was particularly struck also with that arrangement of test tubes for carrying the stock of burrs. Some of us have had them all jumbled up together, and when you go to the box sometimes you find it, and sometimes you don't, and there is no limit to the time that can be saved by having them arranged methodically and placed in order, so that you can pick a burr out with your eyes closed if necessary. Also that little white jar on the cabinet, I consider infinitely better than a waste paper basket for taking care of the used cotton rolls, and so forth. Also that little jar for burrs gives an excellent impression, but not only that, but from a pathological standpoint they should be sterilized before they are used. That duplicate set of much-used instruments I think could be very advantageously copied by the majority of us. That little notification card is a pointer to me. I have been thinking of something of that nature for some time, but I had not enough individuality to get up one that suited me. We all have patients who we know need attention at a certain time, and we can tell them if we know them well enough to come to us, they usually have confidence enough to know that we work primarily for their good, not for ours. The system of keeping appointments is also an eye-opener to me. The biggest trouble in my practice is the people who come in pain, or patients who come in for examination, and those five and ten minute cases are going to be left on my books, and probably some others, because it gives you a whole lot of grief if you have an hour's work on a patient, and you have left an hour for it, and another patient comes in after the hour, and every minute of your appointment is taken up, how on earth are you going to attend to your patients who are in pain? I am glad Dr. Garvin has suggested a remedy. This idea of putting a patient's card on the bracket table, or on the cabinet, in the operating room before the patient arrives, appeals to me. To those of us who have a short memory, it is certainly good. I do not know whether it is lack of training or what, but I have been blessed or cursed with a poor memory. The idea of Dr. Garvin is good. It is awfully hard to remember names, particularly if you are a pretty bad sinner in that regard anyway. Now in regard to the record cards, there is only the one suggestion that I have. On my card the teeth on the chart are numbered, starting at the upper left and going down to the other extreme. I prefer that to the little criss-cross and using the medium line. It is only a suggestion, and I have become accustomed to knowing what tooth a certain number represents, but I think it is only a matter of use. I wish to congratulate Dr. Garvin and this Society on the excellent paper we have heard. (Applause.)

DR. THORNTON: I did not expect to take any part in this discussion, Mr. President, but there is one suggestion made by Dr. Garvin on just a little practical point in regard to the linen slips that cover the head rest. I was in an office in Montreal the other day, and saw a little thing that struck me as a good idea. In ordinary language, it was a new stunt to me. Instead of using linen with a draw string in it to cover the head rest,—instead of using linen at all he used paper. It was not ordinary paper, but, well, I think it was the ordinary paper napkins which are used, and instead of pinning them on, he used a little rubber band around them all the time, and as soon as one patient was gone that napkin was removed, and another put in its place, as they do with the linen ones, I presume. If they are not changed every time they should be. When a lady or gentleman comes in and sees a new napkin every time, it appeals to them, and the little elastic band serves the purpose in a moment.

I am deeply struck by the fact that Dr. Garvin has reduced this thing to a system. There is one thing that dentists should learn early in their practice, and that is that time is the greatest asset. There was one thing that I had in my practice that Dr. Garvin, apparently, has not made provision for. Every minute practically was fully occupied, and I was not constituted so that I could work that way. I remember years ago reading one of Dickens' works where one of his characters asked another how life was going. The reply was, "Life is one demnition grind." Now with a good many life is one "demnition grind," and occasionally when I had time I would go in and sit down and do nothing for a while and relax. In recent years I made it a practice to be at the office at eight o'clock, so as to be there before the assistants and have a little time to myself to sit down and read from eight to half past eight or a quarter to nine, and I enjoyed that rest very much. Being Irish, I was not built on that systematic plan outlined by Dr. Garvin. The result is that I tell my wife that we started on nothing, and have held our own all the time. However, we are going to be a long time dead, and we will have a good time then, I hope.

DR. WRIGHT: Mr. Chairman, I have enjoyed Dr. Garvin's paper very much. It is something in which I have been considerably interested for some time. I think office management has a great deal to do with the working up of a practice or business. Sheridan's definition of business building is a making of permanent and profitable patients. Permanent, in that they will continue to come to you, or recommend their friends to do so. Profitable, in that you make a profit over and above what the cost is, and not what you think it is. I think if some of us were to figure up in black and white the cost of running an office, interest on the investment, and every other thing of that kind, we would find the cost considerably higher than what we think it is.

I think the first assistance necessary in any office is a girl, or a lady assistant. I know there are some offices that get along without one, and probably the first assistant they use is a graduate or a man assistant, but I think the very first assistant necessary in any office is a lady. She can do things for you that cannot be done by anybody else. She can keep your office neater, tidier and cleaner than anybody else, and there are certain things, particularly in anaesthetic cases, that she can do in preparing a patient, and do them better than yourself probably,—such as having a lady patient properly prepared.

There was one point which interested me very much, and that was the first picture on the screen,—the lay-out of an office. My office is similar to a great many offices, with a waiting-room in the rear, and two operating rooms. First of all, I use one of those rooms as a laboratory, and later I had to use one of them for operating purposes. The idea came to me one Sunday evening in church, when the sermon was not very interesting, whereby I had a laboratory which could be entered by my assistant or by myself without either of us going into the waiting-room. If anyone is interested in that I will draw a diagram on the blackboard upstairs. Dr. Garvin's point on examination notices appeals to me very much, as also it did to Dr. Harwood. With regard to appointment cards, I noticed at the foot of that one which was shown, the day and the hour. I use a notation like this: "Two dollars will be charged for unkept appointments unless three hours' notice is given." I think the amount which you are going to charge may not represent the value of the appointment, but let the patient know that you value your time as being worth something, and I think they very often do not value your making appointments with them at all. The fact also that they fear they might be charged helps a whole lot.

Another point about remembering patients, having the card before you before the patient comes in is good. An idea also is to have a little notation of the hobby of that patient before he or she arrives, whether it is horse racing or camera work, or anything of that kind; you can refer to it when they arrive.

In regard to collectors, I have had experience with them for some years, and I have found that the only system of collection is through a lawyer. I get good results from that.

In regard to napkins, I use small towels with a Magic clasp, fixing to the head rest and grasping the towel.

DR. NEWKIRK: I really do not care to offer any discussion of the paper, which was certainly a most excellent one. The fact is I have been so stupid that I have not had an idea in my head since about two o'clock this morning, and it is mighty hard to pound one in now.

I remember a cartoon I saw when I was a boy. It was in somebody's "Weekly," I think, representing a gentleman of German extraction sitting on his bed in the morning, and looking about the room, and one of the shoes was on top of the bureau, his jacket was hung on the chandelier, and his clothing was distributed all about the room in various conspicuous and inappropriate places. He said: "My gracious, what fun I must have had last night." When I woke up this morning I felt rather like that. *Apropos* the paper, I saw this statement a few years ago,—a motto of a business man which covered the ground of system. He said, "I never do anything myself which I can hire done." I thought that covered the ground. I am quite in sympathy with Dr. Thornton, however, in regard to the disposition of time. I never was built that way, that I could conduct things strictly on automatic and exact business principles, and although I know it is the best way, I know I cannot do it. I once undertook to keep a list of private expenditures in a book,—my wife wanted me to do that, and thought perhaps we could do a little more than hold our own. I tried that and nearly went crazy, so I quit. (Applause.)

DR. GARVIN: Mr. Chairman, Ladies and Gentlemen: I appreciate very much the kind hearing you gave me this morning. After the number of times I have spoken at this Convention, much more than I intended, I appreciate all the more the kind way in which you have discussed my paper. I know there were very many loopholes for discussion, and I do not understand why they were not taken up. I could have pulled that paper to pieces myself, but it was very kind of you to let me off so easily.

It is too bad Dr. Wright had the difficulty in his laboratory, but it shows his ability to go after a proposition and not let it slide. We should simply sit down and solve the problem, and Dr. Wright has a very ingenious method of overcoming a difficulty. With regard to the white jar referred to by Dr. Harwood, one point which should be mentioned in connection with that was that it is so designed that until that jar is three-quarters full, the patient cannot see anything in that jar at all. It is designed so that it is high enough for the waste cotton to disappear absolutely. I have never seen a waste paper basket used which was not unsightly, and patients could always see pieces of rubber and waste cotton, which looked very disagreeable. With regard to the paper head rest, instead of linen, I want to thank Dr. Thornton for that suggestion. I intend to try that, and if I like it better than the method I have now, I will discard the linen and use the paper. If I do not like it as well, I will continue the linen I am using now, and which I like pretty well.

Dr. Newkirk's idea of not doing anything that you can hire done, I think puts the whole thing in a nutshell. I think that is a splendid thought we should ever remember.

With regard to the deposit, that I think must be left to the individual operator. I have been in offices where a motto was hung up in front of each chair, "Terms strictly cash, deposit required." That does not appeal to me in a high class professional life. It might be good business, but I think the result can be obtained just as well in another way. After one has been dealing with men for some time, one gets into the habit of sizing up a man. He may make a mistake occasionally, and we learn by every mistake. If a man is doubtful of a stranger, I would not hesitate to say that it is the custom to have a deposit and the balance can be paid when the work is finished. I have sent enough patients from the office by doing that, and found it a very convenient way to get rid of them. There are other people that I do not think it is necessary to mention a fee to. Those patients appreciate it, and will send you more patients because they have confidence in you. It is a personal matter entirely between the operator and the patient. Where there is an element of doubt, the first appointment is always an examination, and you have plenty of time between that and the next appointment to find out the financial standing of the patient.

The only other point is one which was not mentioned in public. Dr. Campbell asked me if my secretary had the telegraphic code down so that she could send a wire to me, and ask me if I was going to have dinner with my wife that night. (Laughter and applause.)

"RIGGS' DISEASE"

By GARRETT NEWKIRK, M.D., PASADENA, CAL.

Read before Dental Society of Western Canada, Calgary, July, 1913

A disease about the roots of teeth with more or less destruction of tissue, more or less (usually) of deposits of calcific matter upon the roots; more or less formation and discharge of pus; more or less extension from their sockets, so that they seem elongated; eventuating without treatment in their total loss: A disease that has been recognized as a fact for centuries, but only within the last two or three decades receiving careful study by oral pathologists:—

During these twenty or thirty years the problem has seemed to become more and more complex. Much light has been shed upon it by some, and a great deal of obscurity by others. And no one, so far, has succeeded in giving the condition a name that is generally accepted. Therefore I am quite as well pleased to say "Riggs' Disease," which means nothing, as to use a term which aims to be scientific but is not.

"*Pyorrhea Alveolaris,*"—the most common name, has reference only to a symptom or result of the disease; but conveys no hint of its true pathological character.

"*Gingivitis,*"—inflammation of the border of the gum tissue, is a superficial term, altogether inadequate; for the disease goes far beyond that.

"*Alveolitis*" means, strictly speaking, inflammation of a hole: a disease of space.

"*Phagadenic Pericementitis,*" a term given us by Dr. G. V. Black, is far better. It is a true definition, so far as it goes. "Phagadenic (destructive) is good; but the disease does not progress far until it is more than a pericementitis.

Dr. Grant Mitchell, in a paper read before the Pennsylvania State Dental Association some years ago, asked for the adoption of a term from Ziegler,—"*Necrobiosis.*" This is said to mean "slow death of a part due to tissue degeneration." It is differentiated from necrosis as follows: "Necrosis may be defined as death of tissue: necrobiosis as death of individual cells." I must confess that this distinction is rather too fine for me. How can we have necrosis without necrobiosis, i.e., death of a tissue without death of the cells which compose it, or, on the other hand, how are we to have extensive cellular death without affecting the tissues?

I think most of us would be willing to classify "Riggs' Disease" as surgical, and in surgery the term necrosis here applies to the death of a well defined portion of a bone,—it may be the whole of a bone; and we may suppose that necrobiosis would mean cellular degeneration of bone, for which we have already the old-fashioned term, "*caries.*" This is more clearly distinctive, and has the advantage of brevity by three syllables; unless we assume that "words of learned length and thund'ring sound" are the more desirable. This, for example, from a Chicago writer: "*Interstitial Gingivitis from Indigestion Autointoxication!*" I am tempted to quote here from an oration by Dr. N. S. Davis, Jr., as follows: "Our forefathers one hundred years ago often endeavored to hide their ignorance in long names and resounding phrases, a common practice, indeed, in all times and not wanting to-day, for how much ignorance will our successors find hidden in words now so commonly used as are metabolism and autointoxication." The truth is that so much has been written by so many men, that the subject is clouded and befogged by the multitude of words. Let us for a while dispense with all fine-spun theories and go back to our plain anatomy, simple physiology and common sense pathology. Then, possibly, through the mist of verbiage we may get a glimpse of sunshine.

What are the tissues of this territory? What is the law of their existence? Is it their natural disposition to preserve themselves? If they are destroyed—why? These are some of the questions, I think it may be profitable to ask.

First of all the base of anatomy here as elsewhere is *bone*. What sort of bone? We have the alveolar processes of the maxillary bones, which appear to have been built up expressly and alone for the accommodation of the teeth. They are four in number,—two for each jaw. The right and left processes articulating in front form practically one. They are composed first of two very thin plates, outer and inner; and from these thin hard laminae extend to form the root cells, or alveoli. The processes grow wider from before backward, for accommodation of the larger teeth. The *body* of the process, however, between the two plates, and all about the alveoli, *is composed of cancellous or spongy tissue*. It is very important to remember this fact, in connection with the study of "Riggs' Disease."

Another thing to bear in mind is that in each upper process with a full complement of teeth, there are twice as many alveoli, or root cells, as there are teeth. Not quite so many in the lower. Approximately, in a "full mouth" (one having thirty-two teeth) there are sixty cells for the accommodation of their roots.

THE TEETH.

I think the statement should be made and emphasized, that the teeth themselves are only incidental to this disease. They are present, and they complicate the conditions: they are placed in danger, they may be mechanically causative; but strictly speaking the affection is not theirs. The part they are made to play will be considered later.

THE PERIDENTAL MEMBRANE.

This covers the root of the tooth and unites it with its socket or alveolus. It makes a joint nearly fixed, yet permitting some movement. It has a certain elasticity, yielding to pressure, and resuming its form when pressure is removed. It constitutes a cushion,—a buffer, so to speak, for the prevention of shocks. It grows thicker towards the end of the root, where force is chiefly directed. Its fibres are diagonally arranged from the socket upward and inward to the root, so that they are put upon the stretch when pressure applies to the end of the tooth.

As noted first, I think by Dr. Black, the peridental membrane is the organ of the sense of touch for each tooth. Of course there can be no sense of touch in the enamel or dentine, or through them to the pulp. This sensibility is increased often by abnormal conditions. In addition to this, it is the *periosteum*, practically, of the tooth bone (*cementum*), on the one side and lamina of the alveolus on the other. It is, therefore, a very complex organ;—*a joint attachment, an elastic support, a double periosteum*, organ of the sense of touch. At its lower border just before it unites with the gum tissue, there is a multiplication of fibres, a thickening which constitutes a firm cord about the neck of the tooth. This has been called not inaptly the *dental ligament*.

Now we have briefly our anatomy of the parts involved in this disease of many names: The bone, we might say is a trough of thin, hard sides, filled up with spongy tissue, and this is permeated by conical holes, also hard lined. In holes or dwellings there are tenants, supposed to be for life, and the lease by which they hold is the peridental membrane. With these complicated conditions, anatomical and physiological, we must not expect to find the most simple pathological problems; yet we are not called upon to multiply complexities unnecessarily.

We have been told that this affection, variously named, is not one disease; but several, and writers have attempted a number of divisions and classifications. I think, however, that with reasonable care to avoid confusion we may assume its unity. Of course it will be subject to complications. It will be modified by the general health, resisting power, temperament and constitution of the patient, the same as local troubles elsewhere.

We meet in practice every day cases of inflammation of the gums all about the necks of teeth, caused simply and alone by the irritation of salivary calculus. There may be even an irritation extending by continuity of tissue to the peridental membrane, and in consequence some loosening of the teeth; but these are not cases of "Riggs' Disease." By simply removing the deposits mechanically and relieving the gums of pressure, the trouble is often cured spontaneously, with little or no medication. And I have seen a case where I have reason to believe that not only the soft parts; but the process as well had suffered from absorption, and there was an exposure of the teeth, beyond the enamel line, and a permanent extension, too, of the interdental spaces; yet, even this might not be included as a true case of "Riggs' Disease." The cause was simply physical, accretional, and curable by mechanical means.

The disease that gives us trouble, the one that puzzles and humiliates us, is something deeper, far reaching. The one class of cases any one can cure who has the mechanical skill to remove deposits of lime, thoroughly, in plain sight, repeating the operation as often as may be necessary. The true "Riggs' Disease," however, has often baffled the skill of our best practitioners; and yet it can be cured, in every instance, speedily, by mechanical means, i.e., extraction of the teeth involved. *Our whole trouble* comes of a desire to save the teeth. "There's the rub."

The ordinary calcific deposit is not a serious menace to the tooth attachment, unless its removal is long neglected, until it causes absorption of the alveolar borders, or such detachment of the gingivae, as to permit the ingress of infective germs to the more deeply seated parts. In this way it becomes causative to and a complication of the true "Riggs' Disease."

Now let us consider as simply as possibly what is the true pathology of this affection. As to what takes place in relation to the peridental membrane, nothing it seems to me, has ever been written to compare with the minute description of Dr. Black, under the heading of Phagadenic Pericementitis, in the American System of Dentistry, published nearly twenty years ago. Nor do I believe that his pathology has been or can be successfully controverted. All that I hope to do is to express the same ideas in simple terms, more briefly, and to carry the question further, as I think it ought to be in relation to the bone.

NATURE AND CAUSES.

Essentially the disease is local. It must be so considered. It occurs with people of all conditions of health and every temperament. It is curable only by local treatment, and as before stated *always* curable by resort to the last radical means,—extraction, and it is *never curable by indirect or constitutional treatment.* Essentially also the cause of the destructive process is an infective poison; and we have no need to suppose that it is any other than that which causes destruction of tissues elsewhere. The discovery of a specific germ for this disease is not necessary, *and need not* be looked for,—in my opinion.

The tendency of tissue is *not* toward self destruction. It is the business of cells to live and reproduce their kind. That is what they are trying to do. The cells of the peridental membrane and of the alveolar process are not spontaneously giving up the ghost because of some far away disturbance among the planets, or "*Indigestion Autointoxication.*" Their law is that of self-preservation, and when they yield their life it is because they are overborne by an *immediate, vigorous enemy.*

The "phagadenic" stage of pericementitis is nothing more or less than ulceration—ulceration with defective drainage. When the thin lamina of the root socket has been broken through, and the spongy body of the alveolar process is involved, the nature of the disease is not changed. It is still ulceration—*of bone*, or in other words, *caries*. It is ulceration with restricted, possibly tortuous, channels of drainage. As a rule the opening through which infection has taken place is but small. The elastic tissues of the membrane outward (the "dental ligament") make it close like a valve. The infected territory is now comparable with any bony abscess poorly drained. Such is the condition.

As I wrote many years ago, (see "Dental Review," January, 1890.) "As in ulceration elsewhere, tissue is broken down particle by particle. The active cause is not from within, but without. The enemy is foreign and aggressive. The cells of the part resist, but are slowly overcome. The enemy feeds upon the conquered territory, and turns the elements of tissues destroyed, against those which next resist. This is in accordance with the laws of war."

A sinus, in the direction of least resistance, is nature's road for the expulsion of the enemy. It is the business of the surgeon first to make the road wide and free; second, to drive out the enemy; third, to encourage and stimulate the tissues. But these will usually take good care of themselves, if we can make them clean and free from their foes.

AN INSTANCE IN SURGERY.

Let me cite an instance out of my own experience in the field of surgery, when, as a young man, I was in general practice on the frontier. A young woman had received a bruise upon the foot by falling from her horse. A swelling ensued over one of the short bones of the instep. Instead of prompt treatment by the knife, poultices were applied till a portion of the periosteum was destroyed. Of course the result was an abscess with a fistulous opening. When I saw her seventeen years later, all the bones of the foot posterior to the phalanges and the lower end of the tibia, had been honey-combed by caries. There was a circle of sinuses, fourteen in number, around the foot; a probe could be passed from one to another, transfixing the member without pain. It was practically dead from heel to toe. The limb had been totally useless for three or four years. During the whole period of the disease, the fourth of a life time, the woman had been treated by many physicians, for scrofula, tuberculosis, and "the blood." ("Indigestion Autointoxication" had not then been discovered.) She had been told repeatedly, that in the condition of her constitution amputation could not result otherwise than fatally. In truth there was nothing the matter with her constitution except *as a result of the local trouble*. It had been a surgical case, and that only, from the start, and surgery cured her, by an amputation, six inches below the knee. Three inches lower I should have found diseased bone. About fifteen years later

I saw her, the picture of health; happy and cheerful. In this case it took seventeen years to destroy a series of bones, short and largely cancellous, by caries. The enemy obtained first a narrow hold beneath the periosteum from which he advanced by molecular steps. Without doubt if a free opening had been made early into the infected territory, and the foe attacked mechanically and medicinally in his lurking places among the cancellous tissues, nature would have saved the member to health and usefulness.

Now the same conditions exist practically in "Riggs' Disease," so far as the bone is concerned, when the ulceration has gone beyond the peridental membrane into the cancellous tissue of the alveolar process. The term caries (or, if you prefer it, *necrobiosis*) applies to the molecular disintegration which ensues. *This would go on to the destruction of the entire bone in time, were it not that by the throwing out one or more teeth, Nature secures disinfection by drainage.*

If, in the case of the foot, there had been secondary organs which Nature could have thrown off in a year or two, leaving free openings, there would have been no doubt a similar spontaneous cure. *But*, it is our problem to effect healing *without the loss* of the secondary organ.

INITIAL CAUSES.

The initial cause of disease in the foot case was traumatic, i.e., an injury,—a bruise. There was doubtless extravasation of blood, separating the periosteum from its bone. By the ensuing inflammation further separation probably took place, with death of a portion of the membrane. Through an opening insufficient for drainage, made from without or produced within, infection of the bruised tissue took place. From that time, slowly but surely, disintegration went forward.

Now I take it that the initial cause of deep-seated pericementitis is usually traumatic. It is certainly true that teeth out of alignment and those which occlude at an unfavorable angle are the ones most likely to have disease of the membrane. I believe that in the majority of cases seen by me, I could trace the incipiency to some form of mal-occlusion, by which the cushion of the tooth has been subjected to violence or undue pressure. Once started, ot course the disease extends, on and on it may be, about teeth that *have* normal occlusion. Mesio-distally, in a "full mouth," the teeth from first to last support each other. *The loss of one tooth* (excepting the wisdom tooth perhaps) weakens the support all along the line.

The theory of mastication is that the force exerted shall be principally direct,—endwise, corresponding to the long diameter of the tooth. There is, of course, a degree of lateral pressure brought to bear upon the food in what we call grinding; but this is effected by the arrangement of interlocking cusps in bicuspids and molars, so that the teeth themselves are protected from any undue sidewise movement. The molars have two or more roots, so set as to brace their crowns effectually. The lower incisors are protected by their placement, which insures that force shall be exerted on the outer line of the archway by the slightly overlapping upper teeth.

The force of normal mastication seems to produce what we may style a healthy degree of irritation of the peridental membrane. Force too great, or misdirected, or altogether absent, as in the case of a tooth with no antagonist, all tend to exfoliation. Nature seems disposed to treat the organ as useless or foreign body (as the deciduous teeth in time), fit only for expulsion.

EXAMPLES.

1. I was consulted by a lady, who upon one side had lost nearly all of her bicuspids and molars; on the other but two occluded, one with a short gold crown, consequently the bite, as we say, was shortened. The lower incisors, which were prominent, had forced the upper incisors far forward, by striking their posterior inclined planes. All were extruded,—elongated, in common phrase, with pus coming from their sockets. The right cuspid was affected in a less degree. The left cuspid, the only one of the six which had a true occlusion, was firm, in a healthy socket. The lower incisors, to which the force applied nearly on the line of their axes, had no peridental disease, notwithstanding the presence of salivary calculus of their gums. The case being otherwise hopeless, the five upper teeth were extracted, and the unaffected teeth used for bridge abutments.

2. A physician came to me to present, as he supposed, a hopeless case of pyorrhea in his own mouth. The disease existed in connection with the lower incisors, principally. Two of these stood higher than their fellows, and about these the loss of tissue was considerable. There were pockets extending nearly to the ends of the roots, full of pus. To use his expression, the teeth had always seemed to be "too long,"—"in the way." The first thing I did was to grind them down to a line slightly below the occlusal edges of the adjoining teeth, so that they should no longer be imposed on, but favored. Being quite loose, they were kept steady for some weeks by silk ligatures.

After thorough scraping of the roots and ragged edges of the alveolar process, and removal of debris with hydrogen peroxide, the pockets were treated twice a week with a mixture of iodine and oil of cloves. The swollen gums were touched a few times with a solution of trichloracetic acid. Every examination showed that the pockets were filling with granulations, and within six weeks' time the teeth were fairly firm in their sockets. The parts appear now, after several years, to be in perfect health, and he has reasonable hope of keeping those teeth for the remainder of his life.

I have no doubt that the incipiency of disease in this case was traumatic,—a bruising, an irritation of the peridental membrane by these badly occluding teeth. And the most important step in the treatment was the correction of this mal-occlusion and relief from further mechanical irritation. Nature in time would have thrown the teeth out. *It would have been her only recourse* notwithstanding that in doing so all the incisors might have been lost.

It is rather a painful duty to remark that very often mal-occlusion and lack of support do not come from nature's fault or accidents. They are produced artificially: failure to restore teeth to proper form and contact; non-protection of tissues in the interspaces; mistakes of extraction, with reference to either the deciduous or permanent teeth. Sometimes, indeed, by the physician who may yet extract teeth.

When a blood vessel of the peridental membrane is ruptured on the root surface, and the membrane over a certain area loses its attachment, we may have deposited there a form of calculus. This, from its origin, has been named the sanguinary,—from the blood. Where the irritation is insufficient to produce loss of blood, but only a congestion of the membrane with effusion, a form of calculus may be deposited which has been called serumal,—from the serum. The first is usually found well up toward the end of the root; the second but a short distance, just under the margin of the gum. They are each distinguished by a dark stain, obtained, perhaps, from the hemaglobin of venous blood. Salivary calculus has no coloration. The sanguinary calculus is usually limited to a small area on one side of a root. The serumal may girdle the root completely, though its mass will not be great. Salivary calculus forms first upon the *crown* of the tooth, extension to the root being secondary by the simple process of *accretion*. The irritation caused by the encroachment of salivary calculus may be sufficient to produce the serumal. But the two first named often exist with scarcely a trace of the third. And the sanguinary or serumal deposits may be starting points for destructive infection of the peridental membrane, where the teeth seem to be quite clean.

But these deposits, of whatever sort, are alike in this. They are foreign, and, as Dr. Black has well said, no tissue in contact with them can remain healthy. We may well suppose that wherever a deposit exists, the tendency is to increased and farther spreading, by the very irritation produced.

The peridental membrane by its location is unusually subject to vascular changes. An illustration of this may be had in a simple way by pressing together, alternately, the free edges of one's thumb nails. The parts grow pale or red by the quick flow of blood, just as the pressure is applied or relieved. This is what must take place in the peridental membrane wherever lateral pressure is made upon the teeth. We all know the result of a blow sufficient to rupture a blood vessel beneath a thumb or finger nail: the widespread infiltration, inflammation, soreness, discoloration, and even loss of nail in some cases. If the effused blood or serum of the part become infected we may have pus, which, with an external opening, might be termed "pyorrhea unguens." Nature exfoliates the nail as she does the tooth: they are both dermal appendages, with this difference, that she can grow a new nail usually, but never a tooth.

TREATMENT.

In considering this briefly, I wish to reiterate the statement that the effort of nature is in the direction of cure. But she must when necessary sacrifice the lesser for the greater. She will sacrifice a nail to save a finger, a finger for the hand, or she will exfoliate a tooth, one or more, to save the remaining part of the alveolar process. As said before, we can come to her assistance with speedy success by mechanical means. We can perform artificial exfoliation in a hurry, i.e., extraction, and in many cases this is the right thing to do. The extraction of one tooth where several others are involved is often a necessary step to save them. Whether we attempt to save all the teeth or not, we must have here, as elsewhere, with similar conditions.

DRAINAGE.

In many cases there is an extensive destruction of the peridental membrane and its alveolar wall, forming a large pocket toward the apex of root, the approach to which is very narrow. A probe or syringe point must be very small indeed to pass between the tooth and the hard edge of the alveolus. If we succeed in passing the needle in some cases, there is not sufficient room for the return of the fluid, and the introduction of peroxide of hydrogen causes distress by its sudden distension of the contents of the sac. Neither is the opening sufficient for the introduction of a suitable instrument for the removal of deposits from the root or the scraping of the bone. To attempt treatment through this mere crevice is like trying to clean a room by poking a broom through the transom of a door.

In such cases, we must make a road in some way for the free introduction of instruments, and medicines, and for the *drainage* of the affected parts. We cannot expect the filling up of these pockets with healthy tissue except by re-formation. Re-formation will not take place without granulations; and granulations will not form when the parts are not surgically clean. All foreign matter: lime deposits, pus, disorganized tissue, soft and hard, must be disengaged and removed, and an aseptic condition *must* be restored. Success of failure hinges absolutely upon this point. We may with a sharp burr break through the alveolar border along the side of the tooth, or we may make a semi-circular incision, dissect up a flap of gum tissue, and open through the bone over the affected parts, so obtaining direct access to them. Either course is justifiable, if thereby a valuable tooth may probably be saved.

In the majority of advanced cases, however, it will be found that destruction of tissues, both hard and soft, has extended through to the gingival margin surrounding, making a road sufficient for treatment and drainage.

REST.

Whenever the surgeon has to deal with a fractured bone he places the fragments in as close a position as possible, and puts the member *at rest.* The physician called upon to treat an internal organ recognizes the same principle, when he stimulates other organs to extra activity, in order to give the affected one, as far as may be, *functional rest.* It is useless to attempt the treatment of these cases in the mouth without a recognition of this same principle.

Although the teeth themselves are not really the organs diseased, it is their movement which keeps up continually an irritation of the inflamed parts. The more nearly they can be placed in a fixed position, therefore, the more nearly we can put the joint, for it is a joint, *at rest.*

How? First, as already intimated, by correcting mal-occlusion, by grinding off projecting edges or cusps of the involved teeth, and, if necessary, their antagonists. Let the stress of incision or grinding be placed on other teeth. This can be done in nearly every case with little difficulty, and yet there is no important part of treatment more neglected.

Next, lateral motion of the teeth may be prevented by the use of either silk or wire ligatures, which should be kept on during treatment, till the teeth are quite firm in their sockets. In some cases, where the lower incisors are principally involved, and salivary calculus a continual encroachment, loose teeth may be kept in position for years by a series of small gold bands soldered together, whereby teeth that are firm are made to sustain those that are loose.

AMPUTATION OF ROOTS.

As a last resort, where it is greatly desired to save a tooth, having two or more roots, the one principally involved may be amputated near the crown. A molar, well supported by adjoining teeth, will stand as it were on one foot, or two, often serviceable and not uncomfortable to its owner.

Where disease surrounds the extreme end of a root which may be covered by only a thin lamina of bone, or no bone at all, and which has been roughened by absorption, so that healthy attachment of new tissue is impossible, it is not difficult to go through the overlying tissues and excise it. By this removal of what has become practically a foreign body, drainage and healthy granulations may be secured, and if the main body of the root has healthy attachment, there is a good probability of retaining the tooth.

Of course, in any case of root amputation, if the tooth be not already pulpless, the pulp must be devitalized, removed, and canals aseptically filled.

FORM RESTORATIONS.

If there be any place, one or more, in the line of an arch, where the teeth do not properly support each other; if any inter-proximae space where a protective contact point is wanting, so that food is continually crowded down upon the gums, so that they are inevitably irritated and inflamed, it is useless to attempt a treatment without remedying first of all these faulty conditions.

The teeth must be restored to proper form, with normal points of contact, so that from the central incisor to the last molar they touch, and touch firmly, supporting each other in the long axis of the alveolar process. (Case of Mrs. B.)

DEVITALIZATION.

Occasionally we find such extreme sensitiveness of the root surfaces that thorough instrumentation is impossible without destruction of the pulp, or of extreme torture to the patient. In these cases, also, the teeth are sensitive to disturbance by heat, cold and acids. Successful treatment is out of the question, unless we devitalize these teeth. If we do, the after-management of the case is greatly simplified. I have had many such, especially of incisors, where the teeth became firm and remained permanently comfortable. Aside from the primary benefit of permitting treatment, the removal of the pulp seems to have often a beneficial effect on the peridental membrane. As they have in part a common blood and nerve supply, no doubt the condition of one will effect the other: hence the removal of an offending pulp will take away at least one source of irritation from the membrane.

MEDICATION.

I fancy that too much stress has been laid upon this, that, and the other form of medication; too much claimed for certain drugs, or combinations of them, for specific effects. The principal, real treatment is surgical. Strictly so. The difficulty consists in making the surgery thorough enough, without resorting to nature's own surgery, the extraction (exfoliation) of the teeth. If we can secure the surgical results of drainage and rest, with the removal of every irritationg substance, there are plenty of antiseptic medicines, any one of which will do. But if the surgical treatment is lacking, no medicine, or combination of medicines will be effective. I have no doubt that one might succeed with salt water, borax, sulphuric or lactic acid, any one of the common essential oils, or one of the combinations advertised and sold under such names as Listerine, Sanitol, Borolyptol, Glyco-Thymoline, etc., etc., provided always that they are not used in excessive strength or too often.

We all get into habits of using certain things, and I presume it doesn't matter so much which or what, so we are experts in the management of our particular hobbies. My own usual preference is for peroxide of hydrogen, which I frequently dilute half or two-thirds, followed by a mixture of iodine, alcohol and clove oil. As an astringent for swollen gums, I use either sulphate of copper, trichloracetic acid, or nitrate of silver, being careful to graduate the strength of the solution used. Often I begin with one of these agents full strength, afterward in solution, more and more dilute, as the conditions improve.

The mistake is often made, I think, of continuing destructive treatment when the indications are for only stimulation. But there is one thing about the application of medicines, of which I wish to speak in closing. There is an important condition that I am sure is often neglected, namely, isolation and dryness of the parts to which an application is being made. This principle is recognized everywhere else, and should be also in the mouth, notwithstanding the difficulties of the situation. In treating the various parts of the upper jaw dryness may be insured for a time by the simple means of cottonoid rolls, or a lintine pad over the parotid duct, with the mouth kept steadily open. For the lower jaw two pads are required, one between the teeth and lip, or cheek, the other toward the tongue, and a saliva ejector is necessary in every mouth where the flow of saliva is free.

After having cleansed a diseased surface, removing pus and other foreign matter, why should we allow saliva to flow in upon it before we make the medical application?

It seems to me that to get the benefit from a local remedy, it must be applied directly to the affected part, the cleaner and drier the better.

GENERAL TREATMENT.

While we consider that the indispensable, effective treatment must be local, yet we should concede as much to general conditions and treatment as we would in connection with any other localized affection. The general health should *always* be taken into account, and unfavorable conditions relating to digestion, assimilation and blood supply modified, as far as possible.

We find often that the "pyorrhea" patient is poorly nourished, neurasthenic possibly, and greatly worried over his or her condition. I am sorry to say that, as it appears to me, too many dentists are alarmists, with regard to this disease, and sometimes other matters. There is always ground for encouragement, for a healthy condition of the mouth can almost certainly be restored by sacrificing one or more teeth, and if it comes to that it is not a killing affair; nothing to compare with the loss of an eye or an ear, or even a thumb or great toe. Usually, even in the worst cases, a number of teeth may be saved to support partial dentures or bridges.

In every case, the state of other organs, the general health, and attitude of the patient's mind should receive fair consideration. In many cases the co-operation of the family physician should be sought. He may give the dentist information not otherwise obtainable, and co-operate with him also in treatment and moral support.

We should remember that with every specialist, his own speciality is apt to loom over large.

To sum up in the briefest manner:—

1. "Rigg's Disease" is local to the peridental membrane and alveolar process, involving incidentally the teeth and gums.
2. It is essentially ulcerative or carious.
3. Its chief *complication* is the presence of a tooth.
4. Its incipient cause is usually traumatic,—from force exercised through the tooth.
5. Mechanical irritation through the movable teeth constitutes one great chief obstacle to the healing of the parts.
6. Nature's remedy is the exfoliation of the tooth, which is, we may say, nearly always curative.
7. It is essentially a surgical disease, to be treated by surgical means, in accordance with the well-known principles of modern surgery.
8. General conditions should not be lost sight of.

I am tempted to add yet another "last word," and say that if all children could have the oversight of an orthodentist (and every dentist should be one in some measure), and if all filling operations were to be made true restorations, with regard to contact points and the approximate spaces, the number of pyorrhea cases would be greatly reduced. They might be few. (Applause.)

THE PRESIDENT: I am sure we have all been very much pleased to hear Dr. Newkirk, this afternoon, and I will call on Dr. M. H. Garvin to open the discussion upon this most interesting and enlightening paper. (Applause.)

DR. GARVIN: I must congratulate the members and officers of this Society, in securing Dr. Newkirk to address the delegates of this Convention, this afternoon. It is now getting near to four o'clock, and the next paper is a paper by Dr. Bush on "The Practical Application of Coloring to Dentistry," and a discussion thereon. So you will excuse me if I read my remarks as rapidly as possible:—

It is indeed a great privilege to listen to a paper such as Dr. Newkirk has given us to-day, and I would at once congratulate the officers of this Society in securing such a well-known, interesting and instructive speaker as our genial Dr. Newkirk, from California, to be the guest of the Society on this occasion.

The essayist discusses the nomenclature of this disease at some length, and concludes that "Riggs' Disease" is the preferable name. I would agree with him in that the names thus far offered are inadequate, but I would prefer the term "Pyorrhea Alveolaris," instead of "Riggs' Disease," to indicate that type of case which has advanced beyond that mere passing inflammation of the gum margin commonly known as gingivitis, that is, a condition more deeply seated and diagnosed in most cases by the presence of pus, however slight. We might call it a pus infection producing a destructive inflammatory process of the retentive structures of the teeth, resulting in necrosis and ultimate exfoliation of the teeth.

It is quite confusing to our patients if a number of different technical terms are used to define practically the same trouble. Pyorrhea is a term so well known in this country among the laity that until a much better one is conceived, I would prefer to speak of the disease by this well-known name.

(Even the essayist falls back to the use of this term later on in his paper in speaking of the physician who came to him, presenting, as he thought, a hopeless case of pyorrhea.)

Dr. Kirk, in speaking at Rochester last November, said pyorrhea is a group of diseases, to which, for convenience's sake, we have applied the generic term of pyorrhea alveolaris—that we will never get a proper terminology until we first recognize that these diseases are members of a group of disorders having the common factor of causing loss of teeth, and that they cannot rationally be called by anybody's name. There is no such thing as Rigg's Disease. These diseases must be classified according to the symptoms, etiology and pathology involved.

Dr. Newkirk speaks of the anatomy of the parts involved, and somewhat of the histology. It would, I think, be well to include in the histological survey the findings of Black and Kirk, which throw some light on the cause or development of phagadenic pericementitis described by the essayist, as an ulceration with defective drainage. Dr. G. V. Black, in 1887, described certain structures on the pericementum which he called lymphatic glands. In 1899 he modified this statement as to the glandular structure of these bodies, and Dr. Kirk states that exhaustive investigation by other writers points very strongly to the conclusion that these structures are epithelial "rests,"—remnants of epithelial tissue of the enamel organ.

Dr. Black, in his later paper, states that the deep-seated conditions of pyorrhea have their origin in these glands, and that in its progress these glands are followed into the depths of the alveolis, the fibres and adjacent tissue suffering by reason of their proximity.

If this theory is accepted, it explains clearly the so-called pericemental abscess on a tooth with a vital pulp, a theory which thus far appears to be the most rational one.

As to cause, I would say that as a rule the disease is local and can be cured by local treatment, although constitutional conditions must play an important part in the severity of the disease as well as in the nature of the treatment, as it would in any other local infection or ulceration.

In case of auto-intoxication we may have a rather rapid decalcification and breaking down of the alveolis, the teeth becoming loose and the gum receding with little or no visible pus formation.

Some would claim that in such cases the condition is caused by auto-intoxication, as a result of mal-nutrition, while others would claim the exciting cause to be of local origin, entirely, and simply hastened in its onward march by constitutional disturbance. While I favor the latter theory, I think it makes very little difference as far as the treatment is concerned, and the treatment is the all-important factor.

Perhaps the most vital sentence in this splendid paper of Dr. Newkirk's is this: "I believe that, of the majority of cases seen by me, I can trace the incipiency to some form of mal-occlusion, by which the cushion of the tooth has been subjected to violence or undue pressure."

The irregularities of occlusion and the relation of adjoining teeth as to contact points, etc., must always be reckoned on and the abnormal conditions made normal in the successful treatment of pyorrhea.

For instance: At times we find, say, an upper second bicuspal occlution has secluding tooth striking on the palatal aspect of the upper, which frequently results in a pyorrhea pocket developing on the misplaced tooth. In a treatment of this case, it is necessary to correct this occlusion, drawing the tooth back into normal position, failing which, it were better to extract and bridge from first bicuspid to molar, using inlay abutments.

In the case referred to of the anterior teeth being protruded and loosened by too severe occlusion of the lower teeth, of course the occlusion has to be corrected, but in doing so it may be necessary to open the bite by means of bridge-work, crowns or inlays, or it may be necessary to treat and inlay these protruded teeth together, including possibly the bicuspids. It is good practice also to draw these protruded teeth back to their normal position before inlaying them. In this way a splendid and permanent result can be secured.

If one or two are quite loose, they may be extracted and replanted quite successfully.

I have seen many cases in which there was a tendency for pyorrhea when a bridge was put in on two abutments, and failed where it would have succeeded had three abutments been used. For instance, in bridging from cuspid to cuspid, we may have an outward strain on these abutments, which would be overcome by including one or both biscuspids in the bridge as well.

In the case quoted of the physician with the lower incisors loose and affected almost to the ends of the roots, instead of holding these with silk ligatures, I would prefer to splint them together permanently, which can be easily done by making inlays with posts for the lingual surfaces and soldering them together or casting the whole splint at once. There is no unnecessary work in such procedure, for to remove the pulps in such cases

I believe to be essential in any case, and then we could have a splint that looks much better than the gold bands around the teeth, and is much more secure. In a case where, say, one tooth is very loose, extract it, treat and replant, using a splint attachment as just described.

The essayist's surgical treatment for deeply seated serumal deposit on the root is to be highly commended. I have had splendid success in treating stubborn pericemental abscess in this way, by making an incision through the gum tissue directly over the affected part, and from this point drilling away the irritant.

The amputation of a molar root, as suggested in the paper, is a very sane treatment, but I think that in all such cases it should invariably be inlayed to one or two adjacent teeth, as its lifetime will be shortened by years.

I agree with the suggestion that pulp devitalization in the treatment of pyorrhea is in many cases a great advantage. For this type of case I would like to ask Dr. Newkirk what method of devitalization he prefers, as in cases where there are no cavities, and the tooth is highly sensitive, present difficulties that at times are quite problematic.

As to local treatment, thorough sealing is an essential, in fact the all-important part, and I find I can get the best results with those instruments of Younger & Tompkins that have their curring edges on a line with the main axis of the shank, particularly the Tompkins scalers. The McDonagh files are very serviceable, being a marked improvement in general design and nature of serration to previous types on the market, but like all files are not as readily kept absolutely sharp as a well-made Tompkins scaler.

The deposit may also be removed by means of plug finishing burrs, particularly between the roots of molars. A thin, flexible spiral drill can be used also in deep pockets, quite successfully.

I believe, as before stated, that the surgical treatment in this way is the vital point; however, the proper use of drugs will surely assist, and, to be brief, I would suggest the use of coal tar products, such as creolin or the preparatory preparations of dentinol, to the strong acids, which drugs can best be carried into the pockets with a platinum broach, looped at the end; such a broach can be readily sterilized by passing through a flame.

Again I wish to express my sincere appreciation of the splendid paper Dr. Newkirk has brought to us on this occasion, and express the hope that he may often be found in our midst, as he will ever be a most welcome guest. (Applause.)

THE CHAIRMAN: Has any one else anything to say on this discussion?

DR. CLINT: Mr. Chairman, Ladies and Gentlemen: This is a subject which is certainly occupying our attention and has done to a degree that perhaps no other subject has taken up our attention. Ten years ago

I would have condemned teeth to the forceps, and done it quickly, and felt that I was doing perhaps good service to my patient; but of late years the subject has been receiving so much attention by specialists like Dr. Newkirk and others with whom we come into contact that I have been impressed with the idea that there was a possible remedy to at least an extent, and it was up to us as dental practitioners to endeavor to meet the requirements of our patients in this regard. I am happy to say that in many cases I have succeeded in attaining results that heretofore I had not any hope for at all. That the treatment has to be of a mechanical character, according to the statement of our essayist, this afternoon, is, I think, a self-evident fact. If you get a tooth into healthy condition with those surrounding it, there is no such thing as pyorrheal albumaris; but if you have that condition and can tell what is the cause of it, I think it is in the power of the human system to do a great deal towards rectifying the wrong which may exist. Many cases that I have had, well, perhaps not many,—I am only a general practitioner, but I have had to deal with quite a number, and have been very agreeably surprised with the results that I have obtained. There are sometimes positions in the teeth which it is almost impossible to reach to remove the deposit. For instance, I have a case on hand at the present time. I spent one and a half hours on the three molars on the right superior side of a gentleman's mouth, and a few days ago I found there are deposits up and around the bifurcation of these roots. Now how to get in there and get that out is a puzzler to me, and if you have any way of doing it, I would like to know it. I conclude the only thing I can do is to reach the point that I can reach, and reach them effectively, polish up the surfaces as well as possible, and then I consider I have done the best I can do for my patient. I think I read some time ago in our journal something to the effect that there was a chemical means of removing this deposit from around the roots of the teeth. I do not know what it is, but I fancy from the character of the deposit, and the character of the tooth that anything that would affect the deposit would be likely to affect the tooth. Hence I have no very strong expectations along that line. I may be mistaken in this matter, the same as I have been in the other. (Applause.)

DR. BUSH: Mr. President, Ladies and Gentlemen: I would not like this paper to be closed without first of all expressing my appreciation of the splendid paper Dr. Newkirk has given us. Having heard and seen Dr. Newkirk before, I did not expect that any of us would be disappointed, and I must say that his paper is the sanest and most explicit explanation of the conditions that we have to contend with of any that I have heard over a long time, if at all. I hemember travelling a very great distance not very long ago, to hear a very noted man on pyorrhea, who was giving us clinics and so on. He opened with a most poetic and magnificent declamation against a dental practitioner, and as far as I was concerned, it may have been my gross stupidity, I did not learn very much from his paper. But in this case I am not disappointed, and I am quite sure that I speak for the rest of the audience. (Applause.)

THE CHAIRMAN: Does anyone else wish to say anything?

DR. ROBERTS: There was one question that arose in my mind. Occasionally you meet a case where there seems to be no deposit, and apparently no inflammation, and where the only indications are a persistent loosening of the teeth, and no pus. I find these cases to be the most difficult to treat that I have run across, and I would like to know what is the most successful of the anatomical treatments of those cases. I have wondered if the cause of such cases is pyorrheal?

THE CHAIRMAN: I am quite sure Dr. Newkirk would be glad to have questions asked if any of you wish to ask them.

DR. CARMICHAEL: You spoke of having a contact all around the arch, if possible. In many cases where the lower first mloar and the second molar tip forward, do you always bridge in these cases, where there is a tooth loose, and there is a dip there which is hard to bridge effectively.

THE CHAIRMAN: If no one else has anything to say, I would ask Dr. Newkirk to close the discussion.

DR. NEWKIRK: I am grateful to Dr. Garvin for the pleasant way in which he opened the discussion, and his kind consideration of my feelings. I do not mind being up against friendly opposition. Some of the most practical papers I ever heard read were those that stirred up argument. A paper that is so good that it isn't open to criticism at some point, is possibly not so desirable.

Dr. Garvin suggests that in a case like that of the doctor with the loose lower incisors it would be better to devitalize and fasten them together with an inlay bridge. Now I might do this myself as a last resort. But I did not do it in this case; it was years ago and the teeth are there yet. The result justifies the treatment. I think I've got you there, Dr. Garvin.

DR. GARVIN: Well, you have the last word, anyway.

DR. NEWKIRK: I was asked about the method of devitalization. I make my own fine, spear-point, hard tempered drills, and I have them sharp. Work a little at a time, keeping cool with vaseline. You can usually go quite to the pulp chamber without sensation. In many cases the pulp has receded a little within its chamber, which you may actually penetrate, so as to reach an absorbing surface for the cocaine, with barely a twinge of pain. Occasionally I use arsenic. Those who have the analgesia outfit should be able to dispense with that, I imagine.

Cases of the type spoken of by Dr. Roberts are hard to manage. They are well nigh hopeless as a rule. There is somehow a lack of vitality—resistance, renewal, on the part of the individual. Fortunately they are in the small minority.

Some one asked what we should do with the case where by loss of a first molar or bicuspid the teeth behind the space tip forward, destroying the whole line of articulation. I know of no way but to widen the space what one can, crowding the remaining teeth together as snugly as possible and bridge, building up lower levels to meet the line of occlusion. Yes, of course I use the term pyorrhea; I suppose we may as well agree to it. There are a good many terms in use that are not scientific but which get settled in the public mind and we have to accept them. (Applause.)

DR. CLINT: I have very much pleasure in moving a hearty vote of thanks to Dr. Newkirk for the very able paper which he has given us this afternoon.

Motion in question seconded by Dr. Wright.—Carried.

CARE OF CHILDREN'S TEETH

W. D. COWAN, D.D.S., L.D.S., REGINA, SASK.

Read before the Canadian Public Health Association meeting, Regina, Sept. 19, 1913.

President Canadian Health Association:

Ladies and Gentlemen,—Believing that through the medium of this paper we should try and reach the public as much as possible in language which they will understand I have avoided as far as possible all technical terms and illustrations.

There are four things in connection with the Dental Inspection of school children, and the relation of dental caries to general health which I would like to impress upon you. These I will summarize first and then give reasons.

1st. I submit that up to the age of two the child should be fed on an animal diet (milk chiefly).

2nd. That from the age of two or the eruption of the temporary teeth the mother should regularly clean the teeth of her child until the child can do it for itself.

3rd. That every child between the ages of six and eleven should regularly visit the dentist.

4th. That the only way to accomplish the third is for the various School Boards to compel it.

Regarding the first of these four I will say very little. The very young child does not come under the care of the dentist and the medical profession, therefore, does not require any advice from us. Sufficient for me to say that all of the temporary teeth and the crowns of all of the permanent teeth have been formed before the child is two years of age and are lying in an unerupted state awaiting the time for eruption, therefore, if we are going to build up a man or woman with strong healthy bones, the food for this should be given at the time when that bone is forming. The erupted tooth depends to a large extent for its power to resist decay, upon its density. Its density depends largely upon the foods supplied while the tooth is being formed, hence the necessity of animal or bone forming food as distinguished from starchy substances at this period.

It is amazing the indifference shown to dental defects; this particularly on the part of the mother towards her children between the ages of two and six. Dentally speaking easily ninety per cent. of the children have no mother at all at that age. These children don't need dentists half as much as they do mothers. The great bulk of parents think (and say) "oh well, these are just Mary's first teeth; she will lose them in a little while, so what is the use spending money upon them." The dental profession don't want her money. All we want her to do is to spend five minutes of her own time twice a day cleaning the teeth of her own child. I will venture the assertion that there are not twenty women in Regina who ever cleaned the teeth of that "little darling" that she would give her life to save. She will wash five dresses, if necessary, a day just to keep the little "sweetheart" clean, but as for the teeth, why she never thought of it." What we want her to do is to get a soft, small brush, and between the ages of two and six, when the child doesn't know enough to do it for herself, clean the teeth for her. Thousands of children have temporary teeth, decayed until they are a positive menace to health. Why? The cause of decay is just the same in temporary teeth as in the adult, viz., fermentation resulting from uncleanliness. The result of uncleanliness and fermentation is just the same in the temporary teeth as it is in the permanent teeth, excepting that in the child it is far more rapid and disastrous. Why is it more rapid? Because the temporary tooth is almost all pulp (nerve) ; a thin bony wall covering a big mass of soft pulp; hence a slight decay is all that is necessary to produce death of the pulp. What then? Well, there will be at least one, and I have often seen a dozen fistulas discharging pus into the mouth. The child doesn't know it for now there is no pain. The mother doesn't know it, for she doesn't understand the case. It all happens unconsciously, but what does happen is this. Every movement of the masticatory muscles forces some pus into the mouth. Every bite the child makes upon that dead decayed tooth sends some more out to be swallowed. Just as we Canadians sprinkle sugar upon our porridge, so do these innocent youngsters mix in pus. If I handed you a quarter teaspoonful of pus and told you to swallow it you would get sick at the thought. Dozens of children right here in Regina are doing it every day. Poor kids. They know not what they do. But they soon will. As to the effect upon the stomach of that child, I leave that with the medical profession. The pus gets to the stomach and we dentists know it. It comes from neglected temporary teeth and we know it. It causes serious derangement of the stomach and we know it. In thousands of cases we have seen marked improvement in health as soon as the cause was removed. But it is not the stomach alone. An infected area exists through which every particle of air which reaches the lungs must pass. The germ theory is no longer a theory. It is a proved condition. Apply your knowledge of this condition; carry it into the lungs of that infected child and what have you got? Disease of course. Not only that but the blood as it comes up to the lungs to receive oxygen, gets what? Just exactly what you would get out of every other ill kept back-yard. The only difference is that you are dead sure you are getting it in this case. Most of us clean up our back-yards once in a while but by neglect or ignorance we maintain a back-yard in the mouths of our children to foster the breeding of trouble creating germs and then we scold these same youngsters because they won't be happy.

The stomach, the lungs, the blood, a pretty good trio to take better care of than we often do, and a bad trio to infect.

Then again these temporary teeth should not be extracted if it is at all possible to avoid it, because to do so is helping along a somewhat regrettable process of evolution. It is conceded that the dental arch is gradually becoming narrower, and our appearance as a human thereby improved. It is said that this process of evolution was started when mirrors were invented for our lady friends. It is also said that the more civilized, the thinner the face and the narrower the arch. Be that as it may, the fact remains that the teeth have not lessened in size in proportion to the narrowing of the arch. The result is an overcrowded arch with increased proneness to decay. Now by extracting the temporary teeth too soon, this process of contraction is individually hastened. Result, mal-occlusion, non-occlusion, retrusion, protrusion and unsightly irregularities and decay. In many cases it takes years to bring the effect, but it comes just as surely as the years do. Nature has provided a way for getting rid of these temporary teeth, and that is the best way. Through our indifference we are turning nature right upside down. Nature provides for the absorption of temporary teeth from the end of the root down to the crown. We are trying to rot them out from the crown to the root, and it is a pretty rotten game we are playing. We are a pretty big factor all right in helping to make this world revolve, but we can't beat nature. We will succeed better by buckling in and helping her along in her own way. What would I do for there is no use denouncing without supplying a remedy? Well, we dentists seldom see these children under six years of age. The harm by that time is largely done. The School Boards can't very well reach these, for they can hardly be called of school age. The only people we can reach are the parents, and we can only reach them by those who come in contact with them. Here, at last, I think, the medical and dental professions can agree to unite. I wish that every medical practitioner would add another page to his prescription pad and give it to the mother at the final attendance at child birth or at some time during family attendance. Impress upon the mother the necessity of buying that soft small brush I have already spoken about, and spending that five minutes twice a day cleaning the little kiddie's mouth, and when she observes decay anywhere then take it to her dentist. The little kiddie is worth it. Cleanliness will work wonders. In asking the medical men to do this I don't want to shrink any duty nor do we dentists want to shoulder any responsibility upon the medical profession. The fact is that the medico is in the home and we are not. They can reach them at the right time and we can't.

I said that every child between the ages of six and eleven should be taken regularly to the dentist. Why? Because at the age of six the permanent teeth commence to erupt and the first of the permanent teeth erupted are the most important teeth in the mouth, and at the same time are the ones most prone to decay, and the most misleading in their character. Almost every mother makes a blunder over the six year molars of her children. At about eight years of age she brings the child to the dentist to have some aching "baby teeth" as she terms them extracted. We dentists know by long experience before we see the teeth that she is clean wrong. It is the most common thing we have to deal with. She is told that they are not "baby teeth," but permanent teeth. "Oh, no," she replies; "Jack never had any teeth there." That is quite true, and yet they are permanent teeth she wants out. To take them out is disaster of the worst kind. Once they are gone, then in the subsequent eruptions the entire dental arch is disarranged. None of the teeth thereafter will occlude as they ought to. Shortly the four twelve year molars erupt and every one of them is out of place and tilted so that the grinding is done on the distal wall instead of on the grinding surface. The interdental space takes on an abnormal shape and the lodgment of food is made easier. Fermentation is increased decay furthered. Meanwhile, absorption of the alveolus is proceeding where the six year molar was removed. This denudes the root of the second bicuspid. Shortly it becomes sensitive and loose. The final result: the three most important teeth in each jaw on each side have been lost, the beginning being that neglected six year molar that the mother thought was a baby tooth and neglected. Now do you see why we want those youngsters to be taken to a dentist at the right time? It may take from five to ten years for it all to happen, but it will happen just as surely as the first tooth was lost. And when it does happen it will take just about one week or less to start a good dose of indigestion. There is more education for some people in half an hour of indigestion, than there is in a week of such articles as this, but we don't want our youngsters to be educated in that way.

There are a hundred more reasons just as apparent as the one cited, why the child should be taken to the dental office between the ages of six to eleven, but time will not permit. The rapidity with which decay progresses in the child's tooth alone would prove the necessity. But how are we going to bring the child to the dental office? They won't come of their own accord. The parents won't send them. It seems to me that the only thing to do is to get the school boards to provide a proper dental inspection and compel a proper dental treatment in the interests of all concerned. If a child is contagion to himself, he is most probably a contagion to others. Have the others not a right to protect themselves, and is it not the duty of the state to protect a child against the ignorance of its parents? When I say ignorance I mean a state made necessary by the fact that we cannot all be experts on all subjects. Ah! you say some men may object to their child being forced to receive dental attention. My answer is that we find ignorance the world over. We always have to fight it. There is no use monkeying with ignorance. To leave a man in ignorance may be to leave him in a state of bliss, but ignorance and bliss and odontalgia and pulpitis and dyspepsia and indigestion are not quite one and the same thing, so that you are doing him a kindness by knocking the ignorance and the bliss and the dyspepsia out of him, even if you have to do it by force. As I have seen it, a health officer or any body having to do with the enforcement of laws made to promote public health, has either to be a Czar or a failure. He can take his choice. Personally, I would sooner wear a Czar's crown and be shot on duty than be kicked out of the back door as a failure. Criticised; certainly. Every dad whose youngster has been whipped at school wants to go and lick the teacher. There are two thousand people in Regina who can run a dental office better than I can. Every man who has been compelled to close a condemned well has been "drinking that water and micro organisms for forty years, and it never did him no harm." We all know these things. Science just smiles at them and bides her time. Criticism be hanged. It is the honest God's truth and the stubborn facts as revealed by present day science that we want. Those must govern and the ignorance and stubborness must not be allowed to stand in the way.

Our Regina school board has made a commendable advance in this matter. We have an inspection by nurses competent to determine whether or not dental services are necessary. It has already had the effect of securing to many children, the benefit of skilled attention. The system gives every indication of being a success. It may be held that we favor it because it increases our business. It may, but when we agree to do in return for it such charitable work as the nurses, then I think we can hold that the accounts balance. The balance being made, then I am at liberty to say that after all, the greatest profit to be considered is the increased health of the child.

In conclusion just a few quotations to show that eminent men agree on the importance of the subject herein discussed.

Sir Frederick Treves: "Everybody seems to be on a diet. If people were a little more careful about their teeth they would not need to be so careful about their diet."

Professor Osler: "If I were asked to say whether more physical deterioration was produced by alcohol or by defective teeth I would unhesitatingly say defective teeth."

Geo. Edwin Hunt, M.D., D.D.S.: "Most infectious diseases are more readily contracted through the mouth than by any other portal of entry to the body. Children with carious teeth and diseased gums may readily harbor the organisms of any specific disease, and while not ill themselves from that disease, may be perfectly capable of communicating it to others."

Just a few statistics: In Brookline an examination of the school children showed the following dental conditions: That teeth of eighteen per cent. of the children were in good condition; thirty-one per cent. were in fair condition and fifty-one per cent. were in bad condition. In Lincoln five per cent. were good, thirty-six per cent. fair, and fifty-eight per cent. bad. This is about the proportion you will find all over America. In many cases adenoids and enlarged tonsils are found as a direct result of bad conditions of the teeth. Wherever the inspection of school children for dental defects has been inaugurated a very marked benefit has resulted. It has been proved by careful watch and the collection of data bearing upon the subject that the children who were treated for the defects found soon became much brighter and better students and scholars. There is no question about it, a child physically unfit even though there is no acute pain cannot get the mental grasp that he or she would, were the conditions normal, instead of sub-normal.

Dental Societies

NATIONAL DENTAL ASSOCIATION ADVANCES DATE OF 1914 MEETING ONE WEEK.

At the urgent request of the Local Committee of Arrangements at Rochester, the Trustees of the National Dental Association have advanced the date of the next meeting one week; therefore, the 18th Annual Session will be held in Rochester, N.Y., July 7-8-9-10, instead of July 14-15-16-17, as originally selected. The officers, the local committee and all other committees are going to put forth every effort to make this meeting, which is the first under the re-organization, the best in the history of the Association, and we feel confident that our increased membership and interest in our Association will prove a decided advantage in many ways.

Homer C. Brown, President,
Columbus, Ohio.
Otto U. King, Ge. Secretary.
Huntington, Ind.

OFFICERS PRINCE EDWARD ISLAND DENTAL ASSOCIATION.

The annual meeting of the Prince Edward Dental Association was held at Charlottetown, September 24th, 1913. The following officers and committees were appointed:—

President—C. H. Beer, Charlottetown.
Vice-President—F. E. Smallwood, Charlottetown.
Secretary-Treasurer—J. S. Bagnall, Charlottetown.
Registrar—
Drs. J. H. Ayers and J. A. McMurdo to complete the Council.

PANAMA PACIFIC DENTAL CONGRESS COMMITTEE.

C. H. Beer, Chairman.
F. E. Smallwood, J. H. Ayers, J. A. McMurdo, A. H. Smallwood.

Dr. J. S. Bagnall was re-elected representative on the Dominion Dental Council Board with Dr. J. H. Ayers, Examiner.

The Sixth International Dental Congress will be held in London, August 2, 3, 4, 5, 6, 7, 1914.

The Canadian Dental Association will meet in Winnipeg on May 26, 27, 28 and 29, 1914.

NEW JERSEY STATE BOARD OF DENTAL EXAMINERS

The New Jersey State Board of Dental Examiners will hold their regular annual meeting and examination in the Assembly Chamber of the State House, Trenton, N.J., on December, 1, 2, 3, 1913. Applications must be filed at least ten days prior to date set for examination.

After January 1st, 1914, all applicants for a license to practice dentistry in New Jersey, "shall present to said Board a certificate from the Superintendent of Public Instruction showing that before entering a dental college, he or she has obtained an academic education consisting of a four years' course of study in an approved public or private high school, or the equivalent thereof."

After January 1st, 1914, a bridge consisting of three or more teeth, exclusive of abutments, and one Richmond Crown will be required as a practical test in Prosthetic Dentistry, in place of a full set of teeth soldered upon a gold or coin silver plate hitherto required.

For further particulars, apply to Alphonso Irwin, D.D.S., Secretary-Treasurer, 425 Cooper street, Camden, N.J.

THE PANAMA-PACIFIC DENTAL CONGRESS

The work of the Committee of Organization of the Panama-Pacific Dental Congress is rapidly assuming definite form, and the entire general plan of the Congress will shortly be announced.

The floor plans of the new Municipal Auditorium, in which the Congress will meet, will be sent to all prospective exhibitors within the next thirty days. The exhibits will be held in the main hall of the Auditorium, a room 190 feet square, affording ample space and light, and from present indications, all of this great area will be fully occupied. It is planned to make these exhibits and their accompanying clinics, one of the great features of the Congress, and they will, aside from the general program, afford a liberal education to any one interested in modern dentistry.

Space in the Auditorium has been reserved for the general sessions of the Congress, and for the meetings of its sections, and also for the dental societies and fraternities which will meet in San Francisco during the Congress.

Three hundred thousand gum stickers bearing the seal and date of the Congress, will shortly be placed in the hands of dental dealers throughout the country, and every dentist who receives goods or letters from them, will in this way be reminded that it is time to prepare for a trip to San Francisco in August of 1915, to attend the Panama-Pacific Dental Congress, and the Panama-Pacific International Exposition.

Dominion Dental Journal

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WEARING ARTIFICIAL DENTURES AT NIGHT

In recent issues of the *Dental Surgeon*, there have been reported several deaths from dentures having been lodged in the throat or stomach. Two editorials have recently appeared in the same magazine on this subject. In modern dental practice, the wearing of partial dentures at night is becoming more and more important. Removable bridge work and the so called removable bridge work and partial dentures are a menace to the remaining teeth and the health of the wearer, besides being a constant danger to life, if worn at night. It is inconceivable why so many dentists make a denture entire or partial for a patient and give no instruction upon the use or care of it. At the present time there are many methods used for assisting in holding a partial denture more or less securely, but none of these is sufficient to prevent it from becoming dislodged in coughing, sneezing, yawning or in the unconsciousness of sleep.

The article in question very unwisely attacks the dental supply houses for selling base metal clasping which is liable to break. The Canadian conception is that the supply houses' duty is to supply what the dentists want, and if the dentist uses base metal clasping and it breaks and a patient loses his life, it is the dentist who is to blame, if he knew what kind of material he was using. Another remarkable statement in this otherwise sane article is that wires are sometimes used to hold partial dentures in place because of economy, while bands would be more suitable to fit the shape of the teeth. Can a flat band fit the crown or neck of any human tooth? The more of a tooth's surface which is so covered the more detrimental it is to the longevity of the tooth. Arguments as to the pros and cons of wire clasps or band clasps are of the past decade. With our present methods of practice and our experience of many lost teeth by caries and pericemental trouble from clasps, the arguments referred to are surely out of date. A clasp which comes in contact with tooth tissue should not be recommended.

In concluding, the article says:

"The first point to be considered is whether the wearing of an artificial denture is beneficial or detrimental so far as the integrity of the natural teeth and the good health of the mucous membrane are concerned, and it can scarcely be denied that there is no better means of starting caries in the former and hyperæmia of the latter. When the teeth are exceptionally strong, and when particular care is taken to ensure a constant state of cleanliness, the teeth may in rare instances escape all injury, and the same is true of the mucous membrane. Such exceptions are, however, so remarkable by reason of their comparative rarity that it is practically clear that, so far as the natural organs are concerned, the less the denture is worn the better, save for the purposes of mastication and articulation.

"There arises, however, the question of edentulous mouths, and if there are any cases in which the possible advantages can outweigh the possible disadvantages it is in there. There are some mouths, though very few, where, even if the impression be taken in plaster-of-Paris, it is impossible to get a denture, upper or lower, to stay in place without springs. In many cases the mucous membrane is pale and the subjacent bony ridges very much in evidence. Again, there is, of course, the difficulty occasioned when the *torus palatinus* is well developed. The wearing of an artificial denture at night in such cases may really do good if care be taken to constantly cleanse it. The mouth is thus kept constantly moulded to the shape of the case and slight hyperæmia of the mucous membrane is no disadvantage, since by this pathological process it becomes slightly swoollen and thicker and in this way the prominence of the bony parts is somewhat rectified. Again it may be repeated that such cases are rare, and if a general rule has to be laid down, it must be that on no account should an artificial denture be worn at night. Not only for the reasons indicated above, but because in many instances comparatively large-sized plates have mysteriously disappeared, and have been discovered to be in the oral passages too late to prevent a fatal result."

MATRICULATION IN GREAT BRITAIN

Having been frequently asked what standard is required in Great Britain, we publish the following. The reader will notice that Ontario, New Brunswick and Medical Board of Nova Scotia have provisional recognition for 1914 only.

University of McGill, Montreal.—Matriculation Examination.

College of Physicians and Surgeons of the Province of Quebec.—Matriculation Examination.

Universities and Colleges of the Province of Ontario.—Departmental Arts Matriculation Examinations (conducted under the direction of the Provincial Educational Department.) Provisional recognition for 1914.

University of Manitoba.—Matriculation Examinations.

University of New Brunswick, Fredericton.—Matriculation Examination, Provisional recognition for 1914.

Dalhousie College and University, Halifax, Nova Scotia.—Matriculation Examinations.

Provincial Medical Board of Nova Scotia.—Preliminary Examination. Provisional recognition for 1914.

No certificate from the Indian and Colonial bodies is accepted unless it shows that the Examination has been conducted by or under the authority of the body granting it, includes all the subjects required by the General Medical Council, and states that all the subjects of Examination have been passed at not more than two examinations. Copies of the form of the required certificate are supplied by the Registrar of the Council.

Matriculation examinations are on many grounds the best, and ensure entry to all professions.

No one may be registered as a Medical or Dental Student under the age of 16; every applicant having to produce evidence of this. The commencement of professional study recognized by the qualifying bodies is not reckoned as dating earlier than fifteen days before the date of registration.

DENTIST HONORED ABROAD.

Dr. Eudore Dubeau, Dean of the Dental Department of Laval University, Montreal, has just returned from Paris, where he was honored by being made an honorary president of the Odontotechnique Society of France. The Federation Dentaire Nationale de France gave a banquet in his honor at the Hotel Terminus, Dr. Charles Godon presiding.

Editorial Notes

J. M. Dickson, R.C.D.S., '12, is opening an office in Medicine Hat, Alta.

Dr. D. Callum was married to Miss M. Dillon, Toronto, September 18, 1913.

Dr. Harry Hoare, Wetaskiwin, Alta., spent a week of October visiting friends in Toronto.

The sixth International Dental Congress will be held in London, England, August, 1914.

The Dental Faculty, Dalhousie, is providing more than its share of footballists and athletes for the University sports.

If you are in the habit of making butt joints for inlays, try a few with thin edges and note the difference.

The firm of J. E. Wilkinson and Company has been reorganized and will continue in business under the guidance of Wickett and Smith.

Dr. F. W. Ryan, of Halifax, has been elected President of the Provincial Dental Board in the place of the late Dr. Hibbert Woodbury.

Dr. John Lionel Carroll, of Brockville, was married to Miss Emily Saunders Mallory, of Brockville, on Wednesday, October 8th, 1913.

If you have been in the habit of treating blind abscesses or abscesses with sinuses for months, get someone to awaken you and then go to sleep right.

Dr. W. M. McGuire, Watford, Ont., member of the board of directors for district No. 5, is at present in the Toronto General Hospital, suffering from a brain tumor.

The registration of dental students at the Royal College of Dental Surgeons, Toronto, has largely increased this year. There are a hundred and two in the freshman class alone.

The dental profession in the province of Quebec should, as soon as possible, visit Laval College so as to have a thrill of pride in what dentistry is doing in their native land.

Both the Temple Patterson Co. and S. S. White Co. will shortly move to two magnificent buildings on College street, Toronto, almost opposite the Dental College.

Managing dental parlors seems to be a good training for the wider sphere of getting easy money from the public. *Saturday Night* has recently shown how a Vancouver loan company has swindled a number of people all over Canada under the management of an ex-dental parlor manager.

One Dr. Lowe, Vancouver, B.C., has a unique way of advertising, and evading the dental law. He writes a column on the iniquities of the B.C. Dental Board, and ends up thus: "If you don't believe what I have said about the board watch the throngs coming and going at the office of Dr. Lowe at Hastings and Abbott streets."

The following appointments have been made to the staff of the Dental College, Toronto: Mr. Lancaster, Department of Chemistry; Dr. Cowling, Department of Metallurgy; Dr. Bruce, Dr. Coram and Dr. Smith, Clinitians; Dr. Richardson and Dr. Minns, demonstrators in the laboratories; Dr. Law, in charge of the examining and extracting departments.

Lord Chesterfield said in one of his letters to his son, July, 1747: "Do you take care to keep your teeth very clean by washing them constantly every morning and after every meal? This is very necessary both to preserve your teeth a great while and to save you a great deal of pain. Mine have plagued me long, and are now falling out, merely for want of care when I was of your age."

INSTITUTE OF DENTAL PEDAGOGICS.

The next annual meeting of the Institute of Dental Pedagogics will be held in Buffalo, N.Y., January 27-28-29, 1914. The Executive Committee is planning to present an exceptionally interesting program which no dental teacher can afford to miss. J. F. Biddle, Secretary, Pittsburgh, Pa.

BACK COPIES OF THE PROCEEDINGS OF THE NATIONAL DENTAL ASSOCIATION.

There are a few copies of the 1907, 1908, 1909, 1910, and 1911, "Transactions of the National Dental Association," in the possession of Dr. Arthur R. Melendy. These copies, while they last, may be secured by libraries and other educational institutions and members of the N. D. A. by sending thirty cents per copy (to cover postage) to Dr. Arthur R. Melendy, Holston Building, Knoxville, Tenn.

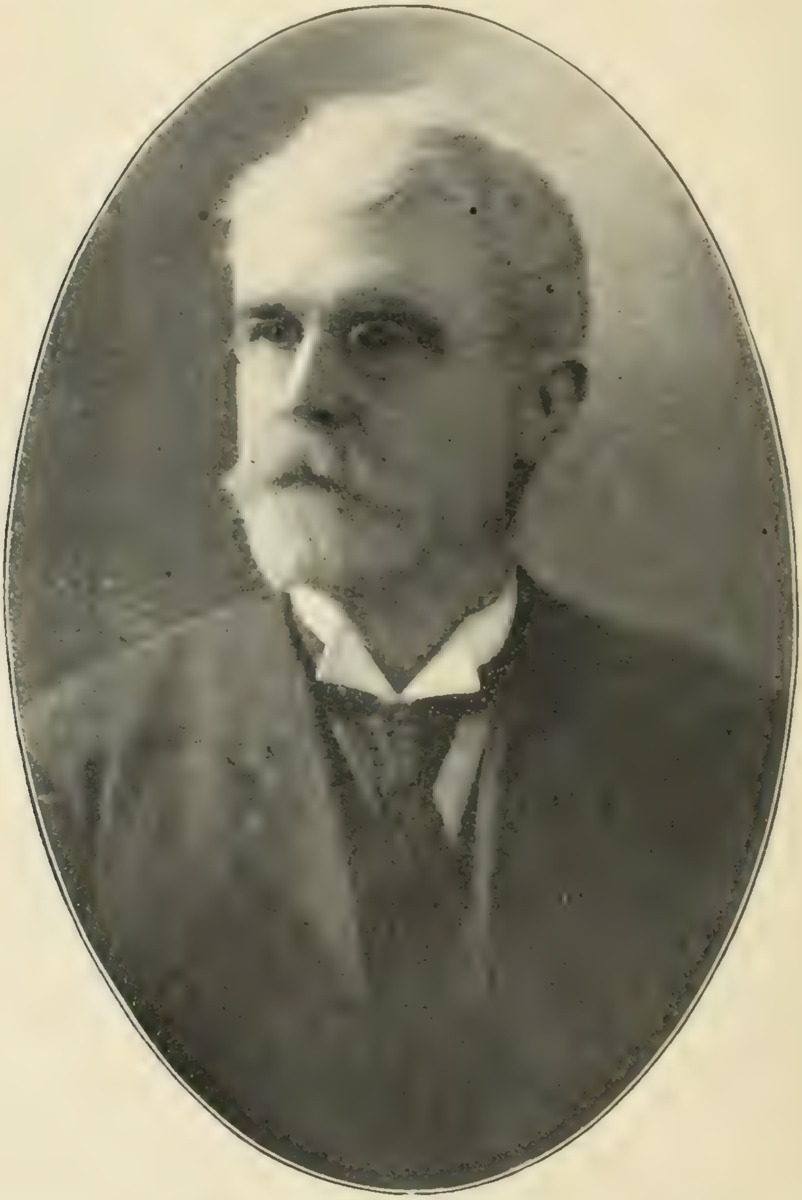
OTTO U. KING, General Secretary.
Huntington, Ind.

Obituary

THE LATE DR. HIBBERT WOODBURY

On July 2nd, 1913, at Halifax, N.S., after but a few hours illness, Dr. Hibbert Woodbury suddenly passed away, aged seventy years.

Dr. Woodbury received his early education in his native province. He began the study of dentistry in 1869 in Massachusetts when not one in many of the profession had attended or graduated from a dental college. He conducted a practice in Boston from 1871 to 1874 in partnership with Dr. Marcellus Newton and achieved success, but through ill-health was obliged to seek a less rigorous climate.



In 1877 he graduated from the Philadelphia Dental College. He was the valedictorian of his class. Orthodontia was the subject of his graduating thesis. It was illustrated by pen and ink sketches and was of such merit and originality that he was asked to read it before one of the Dental Societies of Philadelphia. This was an early indication of the intense interest he manifested toward all phases of the dental profession. He practised for a time before and after graduating in Babylon, New York, but in the autumn of 1878 he removed to Halifax, where he established a large practice.

His brother, Dr. Frank Woodbury, entered into partnership with him in 1884, under the firm name of Drs. Woodbury Bros., which continued until 1909. He then formed a partnership with his sons, Dr. William W. and Dr. Ralph H., under the firm name of Dr. H. Woodbury & Sons. He was actively engaged in his profession at the time of his death. He was strongly identified with every movement that meant the elevation of his profession. He was one of the charter members and a prominent promoter of the Nova Scotia Dental Association which was incorporated in 1891. He was a member of the Provincial Dental Board from the beginning and was president for many years until his death. He assisted with a strong hand in the foundation of the Maritime Dental College in 1908, which he lived to see become a faculty of Dalhousie University and a permanent centre of dental education in Eastern Canada. He occupied the chair of the dental prosthesis and took into it all his ardent desire to see young men succeed in their work. Both his sons are teaching in the college.

At the age of eighteen he identified himself with the Methodist church and was a consistent member through the remainder of his life, and successively filled nearly every office open to a layman. He was a local preacher, and his ministrations were acceptable in any Protestant church in which he could be persuaded to speak. He was continuously Sunday school superintendent for twenty-five years in Grafton Street Methodist Church. He was president of the Y. M. C. A. in Halifax for seven years, during which time the beautiful new Y. M. C. A. building was erected. He was also a member of the Maritime and National Committees of the Association.

He was a director in the Institution for the Deaf and the School for the Blind. He spent much time and thought in promoting the interests of those Institutions which meant so much for this unfortunate class of young people.

He was broad in his sympathies, earnest in his promotion of truth and high ideals. He practised dentistry and loved it for what it meant for the public good. He gave his life for others, and it can be truly said of him, "He went about doing good."

He was a Liberal in politics and active in the councils of that party, but constantly refused all preferment or office.

For some years he conducted a large farm and orchard in the Annapolis Valley, where he took the larger part of his recreation.

Dr. Woodbury was the son of Francis and Elizabeth Condon Woodbury. He was the eldest of three children, Maria, his sister, the wife of the late G. W. Bell, M.D., of Kingston, N.S., and Dr. Frank Woodbury, of Halifax. His ancestors were Puritans and pioneers both in New England and Eastern Canada. In 1881 he was united in marriage to Miss Lalia M. Weatherspoon, daughter of William W. Weatherspoon, Esq., of Granville, Ferry, N.S. Mrs. Woodbury and two sons, Dr. William W. and Dr. Ralph H., survive him.

The memorial service held at his home was largely attended. Clerical representatives from all Protestant churches and Dalhousie University added their tribute to the worth of the life of Dr. Hibbert Woodbury to the country and to the world. The interment was at Middleton, Annapolis County.

DEATH OF DR. HENRY A. SMITH

Henry A. Smith, A.M., D.D.S., born Oxford, Ohio, February 28th, 1833; died Cincinnati, Ohio, September 10th, 1913; D.D.S. Ohio College Dental Surgery 1857; A.M. Miami University 1894.

For more than a half century, Dr. Smith had been one of the best known men in the dental profession in that city.

He was Dean of the Ohio College of Dental Surgery for more than thirty years. During this time he became one of the leading authorities in his profession in the Middle West.

No man connected with his profession did more to advance the research work of dental surgery than Dr. Smith. His efforts were crowned with distinction throughout the country.

Not only did Dr. Smith devote the best years of his life to imparting of his great skill and learning to others, but he was one of Cincinnati's leading practitioners most of the time during his fifty years professional life.

Dr. Smith received his degree of D.D.S. from the Ohio College and his Master of Arts degree from Miami University at Oxford.

He is to be succeeded in his professional work by a son, in both his college work and practice.

Besides a son, he leaves two daughters, Mrs. Scott and Mrs. Griese, both of New York City, and a widow.

The funeral was from his late residence, and his body was laid to rest at his old home, Oxford, O.

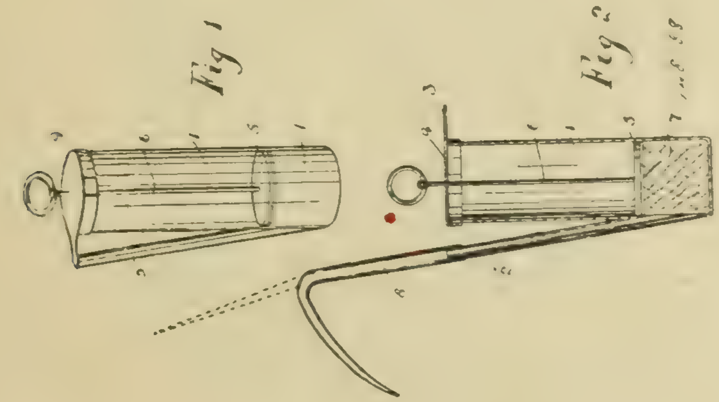
PATENT ISSUED AT OTTAWA.

No. 148,188. TOOTHACHE EASER.

William M. Day, Lansdowne, Ontario, Canada, 27th May, 1913; 6 years. Filed 14th January, 1913. Receipt No. 219,199.

Claim.—1. A toothache easer comprising a vessel, a lid upon said vessel, a tube communicating with the lower part of said vessel, an absorbent situated in said lower part of the vessel, means for compressing said absorbent and fluid conveying means adapted to be connected to said tube.

2. A toothache easer comprising a vessel, a lid upon said vessel, a tube communicating with the lower part of said vessel, an absorbent situated in said lower part of the vessel, a plunger adapted to compress said absorbent, a rod passing through the lid connected to said plunger, and an extension adapted to be connected to said tube.



3. A toothache easer comprising a vessel, a lid upon said vessel, a tube communicating with the lower part of said vessel, a projection upon said lid to close the end of said tube when the lid is turned for that purpose, an absorbent situated in said lower part of the vessel, means for compressing said absorbent, and fluid conveying means adapted to be connected to said tube.

4. A toothache easer comprising a vessel, a lid upon said vessel, a tube communicating with the lower part of said vessel, a projection upon said lid to close the end of said tube when the lid is turned for that purpose, an absorbent situated in said lower part of the vessel, a plunger adapted to compress said absorbent, a rod passing through the lid connected to said plunger and an extension adapted to be connected to said tube.

Surely this is the work of a misguided inventor.—(EDITOR.)

DR. C. B. TAYLOR LEAVES THE DENTAL PROFESSION.

Capt. C. B. Taylor, who has for several years conducted a successful dental practice in St. Thomas, has disposed of his practice to Dr. James Allan, of Toronto. Dr. Taylor, who was one of those interested in organizing the Noble Manufacturing Company, Limited, is now identified with that company in the capacity of managing director. He is one of the city's foremost business men, and for the past couple of years has been secretary of the Board of Trade, doing much in connection with that body's movement for the advancement of St. Thomas as an industrial centre. Dr. Taylor has also been connected with military matters and helped materially with the reorganization of the 25th Regiment, in which he is captain of "B" Company. Those who know Dr. Taylor predict for him success in the business world.

FOR SALE.—Dental Chair, Engine, 12 pairs forceps, Impression cups and several other articles used in a dental office. Address (Mrs.) D. P. Bogart Whitby, Ont.

Dominion
Dental Journal

Vol. XXV. TORONTO, NOVEMBER 15, 1913. No. 11

Original Communications

SURGICAL TREATMENT OF ALVEOLAR ABSCESS

A. M. Firkins, D.D.S., Edmonton, Alta.

Read before the Dental Society of Western Canada, Calgary, July, 1913.

Pyogenic infections, in common with most general infections, as smallpox, scarlet fever, and typhoid, have the tendency to get well in due course, if not interfered with at all, and inflammation formerly considered a pathological process, is now known to be the local attempt at repair of actual or referred injury, such as the intrusion into the tissues of foreign material, or bacteria.

Lister, about forty years ago, gave the world antiseptic surgery, his discovery being the application of the facts demonstrated by Pasteur, that decompositions, putrefactions, etc., were caused by micro-organisms. His system was antiseptic surgery, pure and simple, operating in a carbolate spray, using antiseptic baths for affected parts, and complicated antiseptic and germicidal dressings, in this way getting wounds to heal without suppuration. In surgery up to this time pus was the "sign of better things."

The trouble found with this method was that antiseptics strong enough to prevent the growth of micro-organisms prevent cell proliferation as well, and thus held in check the natural process of healing. It is hardly possible to conceive in the light of known biological laws, an antiseptic destructive to pyogenic bacteria, and not destructive to the vital cells of the bodily tissue.

Surgery has steadily progressed in the line of substituting asepsis in operating and post-operative procedures, for the direct application of antiseptics. This fact can be illustrated by the treatment of the ordinary boil; the simple abscess. A few years ago it was considered good practice to inject a five per cent. solution of phenol and sometimes salicilic acid which stopped the pain, and killed the boil all right but there was generally a greater subsequent suppuration, than if it had been left alone. This is the 19th century treatment for a simple pyogenic infection.

The use of the electro-therapy and therapeutic lamps, the X-ray, and so forth, may be beneficial in the hands of one who thoroughly understands them. The autogenous vaccines, and prepared anti-bodies may become of prize importance, but the peculiar anatomy met with alveolar abscess, especially in the acute stages, are not favorable to either class of treatment, even when we are assured of definite results.

Acute alveolar abscess generally has for an immediate cause infection of the perapical space by way of the root canal. We may as well admit that dental operations, in good judgment or not, and honest as well as otherwise, are indirectly responsible for a great many of these infections, especially the ones we get a chance to treat.

Alveolar abscess is found in connection with the upper laterals very much more than any other tooth. This is more infectious through large root canals than small, accounted for by the fact that it is subject to early decay, and if fillings are placed, the pulp often dies later. The apical foramen is slow and erratic, in closing, so a good root filling may be placed.

The staphylococci and strepto-cocci are principal afferds always present in the mouth, and strepto-coccus longus, the most virulent, and give pus the quickest.

The diagnosis of acute abscess is made simple by the fact that the location is usually determined by soreness of the tooth end, if much inflammation has arisen, the tooth is pushed out of the alveolus, so that it hurts whenever the teeth close; if much pus has formed the pain is increased with every slight jar. The fact that the inflammed space is enclosed by bony walls, and the dense peridental membrane makes the pain intense and demands earlier surgical interference than might be advisable in more vascular regions.

These cases generally present about the time stasis of the blood has occurred, and pus is beginning to form, and sometimes, but not often, may be relieved by cleaning out pulp chamber and root canal, and getting the necessary drainage. Systematic remedies, in the way of saline purgatives are always advisable, and if pulse is high and hard, indicating considerable lucocytosis, with acute throbbing pain, arterial sedatives such as veratrum veridie, aconite gelsimim and migrain, may be given. Veratrum is the quickest to act and probably the more powerful.

Many dentists worry the patient along with counter-irritants, but they do not help much, and hot fomentations will do all most of them accomplish; but the necessary drainage and relief of the compression in the infected area should be accomplished by incision, as nearly opposite the apex as possible, if pus has burrowed through side of process it will be discharged by incision of the superficial tissues only, but in case it has not, cut through wall of alveolus with chisel or drill and deep pus pockets on posterior molars and bicusps, almost immediate relief will be given. The ethyl chloride spray is a useful adjunct to this operation. The tissues are usually too congested to inject local anaesthetics.

The management of the patient is of much importance, but except to state that firmness and decision should be shown by operator, and that it is not wise to attempt to do too much for a patient who wants to "boss the job." The bite should be opened also to relieve the irritation due to the occlusion.

The lance sold by dental supply houses and seemingly popular with dentists, is not suitable; a scalpel shaped blade, with nearly straight back, so that the point is always in line with the shaft, with the blade dulled except where it cuts with the initial thrust, is the proper instrument, and it should be very sharp, and of course should be sterilized immediately before using, as every means should be used to prevent added infection. The mucous membrane should be cleaned with alcohol before incision is made. Mixed infections are of the worst type where found.

There are two principal forms of tumors caused when pus is allowed to burrow through the process and collect the ordinary rounded form with definite margins, where the pus has penetrated the periosteum, overlying the bone, and the flat swelling with indefinite margins where it has lifted the periosteum and collects between it and the bone. This is the form that is apt to cause necrosis, and is met with more often around the lower posterior teeth than elsewhere. It requires free incision, and should be watched carefully after pus is discharged.

Now the next step is the irrigation, having the abscess open and the pus discharged we come to the choice of many solutions, antiseptic and stimulating, some proprietary compounds being in considerable favor, largely due to their taste and deodorising qualities. Boracic acid forms the antiseptic basis of many, and is probably the best antiseptic for this purpose.

But in the opinion of the writer, the physiological salt solution, 9 per cent. Na Cl in distilled water is the ideal irrigating solution for this type of pus pocket. It should be thoroughly washed out, putting considerable force to the stream. Then a "tent" formed by winding a little cotton on a blunt instrument, saturating this with phenol and then pressing in a napkin to dry of excess, should be placed in the cut and left for several hours, sometimes till next day, unless it is considered necessary to irrigate more often. This is one of the best purposes to which phenol can be put in dentistry; it kills off the epithelium and keeps the cut open, allowing free drainage. The use of hydrogen peroxide is never justified and much damage has been accomplished by its use. The packing should be renewed as long as pus continues to form, and this governs the frequency ot need for irrigating.

When soreness has subsided, usually a day or so, after discharging the pus the tooth may be cleaned out and roots properly filled, and the abscess is cured in a short time, unless there are complications involving the bone, or much of the peridental membrane has been destroyed.

Now there are certain mixed infections in which inflammation is very severe, and when patient is in weakened condition from absorbing poisons. With these sometimes the pain and inflammation is slow in subsiding, and even after drainage has been secured, it continues to be severe, and then it is better to use a strong antiseptic solution, even to point of destroying the infected tissue, this being much better than to let the poisons from the infection destroy the patient. These usually follow extraction, in which considerable laceration of tissues has taken place with unclean instruments.

Sometimes an acute abscess forms on the lingual roots of upper molars, and the periosteum is torn away from bone, but if taken soon enough, these do not present any unusual difficulties. But they are very slow about healing if pus remains in contact with bone long, this condition being met with from the anterior teeth, only when pus has burrowed extensively, and after the abscess has assumed the chronic state. Complications in which the antrum of Highmore is involved usually come to us after the acute stage has passed and chronic sinusitis is established.

When an abscess fails to heal after the initial discharge of pus, we say it has become chronic, and usually a sinus is found discharging continually, or at intervals on the labial or buccal mucous membrane over the roots of the teeth. However a sinus is sometimes not present at all, the discharge being absorbed by the granulating wall of the cavity, and here again the pus may burrow far from the seat of the trouble, on the face just under the eye, and along the inferior angle of the mandible, and along the muscles to the neck, and even in the region of the clavicle.

Sometimes there is never an acute stage, the action being of a slow nature, without inflammation from the beginning.

Here again management of the patient is important, as this slow burrowing does not hurt they are inclined to "let sleeping dogs lie," and are sometimes advised to do so by physicians and dentists, but this advice is seldom if ever justified.

They persist from the fact that the cause of the original infection, namely sepsis in the pulp chamber or root canal, has not been cleaned up, or in many cases that a root filling extends out through the apex, making healing difficult or impossible; or from cases outside the root canal, destruction of the peridental membrane from deposits of serumnal calculus on the denuded root from the presence of carious bone or pieces of necrosed bone, etc.

Here again the tendency to heal is strong, and if the root is cleaned, and filled, most of these cases will get well at once, unless of over three or four years standing, but time is not the real element to guide the operator, rather the amount and nature of the damage done by the suppurative process, or often chemical destruction of the principal fibres of the peridental membrane.

The X Ray and trans-illumination are often of great value for determining the conditions,—the X Ray especially for deciding about the "integrity" of root fillings, and the trans-illumination in cases of engorgement of the antrum. Both are often misleading, and are not always available.

The soft silver probe, with slightly enlarged and stiff bone explorer—not a cavity explorer—which is not so good as it springs too easily—should be in every dental cabinet.

The first thing to do in exploring to determine the guilty tooth, or teeth, unless it is quite clear from the teeth themselves, is to follow up with the silver probe. The opening of the sinus is not to be trusted very much unless right at the apex of a root, and then sometimes is from another tooth entirely.

Now after determining the seat of the trouble to get the root sterilized and filled, or find out, as is sometimes the case that it cannot be filled is the next procedure. Then if nothing prevents in the way of external conditions referred to, the sinus heals in a short time.

The practice of putting phenol, Hd2SO4 and other chemicals through the apex is apt to do a lot of harm. It is very true that after this sort of treatment the pocket is sterilized, and the sinus heals immediately, and the case seems to be cured. But this does not develop new peridental membrane, and clean out necrosed bone, at least without danger of extensive destruction in cancellous bone of this region, and the circulation of nerve supply of neighboring teeth is endangered.

To change these conditions, where a stubborn granulating wall has been found without destruction of bone, all that is necessary is a stirring up with a small curette, making even a considerable inflammation and soreness for a few days, to get a fresh wound, which will heal. This is especially useful where sinus runs along the peridental membrane, a vexatious matter in some cases.

All cases which do not heal at once, after the root is filled, or with the treatment need more radical treatment. The roots which are denuded of peridental membrane should be resected, and carious and necrosed bone removed with vigorous curetting. A good sized opening should be made through the mucous membrane over the apex, a crescent shaped flap is sometimes made; but if this is in the way it is better removed, injecting with adrenalin Novocaine if done with local anaesthetics, and if done with general anaesthetic this gives a cleaner field. This operation can be performed on the six upper anterior teeth, and sometimes on the bicuspids. Separate roots may be resected or better entirely removed on the upper first molar and sometimes on the upper second.

On the lower teeth this is rather hard to use successfully on account of process and the fact that they do not heal readily.

The lower molars may sometimes be divided where one root only is affected.

In incurable cases due to location of teeth or amount of peridental membrane destroyed the teeth should be extracted.

Ugly scars are formed by opening of an abscess on the face, and these often have to be removed by subsequent operation after the infection is removed and healing has taken place. The skin is drawn into the opening by the contraction and tendency to grow into areas of energy, and then adheres to the periosteum of the underlying bone. These may be removed or benefited at least by cutting the adhesions and placing a straight needle through the external part of the scar holding it nearly to its proper place. In many cases the scar tissue has to be dissected out and sutures made in each of the underlying layers of tissue to get rid of what is often a prominent and ugly looking disfigurement of the face.

Where a salivary fistula is formed it should be healed by stopping the flow of saliva by plugging internally and if external part persists, curette to get a fresh surface, and then place a little cotton with a coating of vaseline over the external opening and place a bandage holding it firmly in position.

Where the antrum of Highmore is involved from the superior bicuspids, the proper drainage is obtained by opening into its inferior angle which is located just above the bicuspid roots, and not by way of the alveolus of a bicuspid. This opening drains the cavity thoroughly and is out of the way, and the bony wall is very thin, and sometimes nearly missing in chronic cases, so that it is easily opened, and then the access for packing and cleaning is direct. This is important, as sometimes it is necessary to keep this packed several weeks to get proper healing, and keep out collection of mucus and prevent redundant granulating tissue from causing a recurrence of the engorgement. (Applause.)

THE CHAIRMAN: I am sure we are all very pleased to have had this paper from Dr. Firkins. I think it is the first paper we have had from him, and it is the first time he has attended our meetings. I hope we shall hear more from him in the future.

DR. PIPER: Mr. Chairman, I feel very grateful to the essayist for the comprehensive manner in which he has laid this subject before us. I regret exceedingly that I had not an opportunity to see the paper before I heard it, which was at the same time as you did. Dr. Firkins, however, gave me two pages, last night, pages three and four, which were at the beginning, and this is a paper which would take a great deal of time and thought and study to discuss, because the essayist has certainly gone into it very thoroughly. I quite agree with him in his treatment of chronic abscess. We have all had more or less trouble with these cases, and we are perhaps in the habit of injecting a little warm water, with perhaps a five per cent. of peppermint in it, and making an appointment to come back again, until we get tired and the patient gets tired. This used to be my practice, but it is not to-day. When they present themselves, I first get satisfied of their condition, by a thorough examination, and I then cut off the end of the root. Now a procedure of this kind, say, for instance, a lateral, where we are satisfied that the end need not be removed by making it perfectly sterile first, making an incision, and with a blunt instrument forcing the tissue back. Then with your perfectly sterilized new burr—but before this an ethoel-chloride spray should be used, and you get a certain anaesthetic effect, and if not in that way, a drop of phenol. I find very little trouble and very little pain. It only takes a moment or two to cut that end off, and to trim it, pack it with iodoform, and after one or two visits you are through with that tooth, and you have done with the abscess. I have treated under the old method, for over six weeks, and finally in disgust you hardly know what to do. You can, however, rest assured, if the end of that root is cut off and properly packed in with gauze, it will fill in, and you will have no more trouble.

One remark of the essayist was regarding the use of coal tar derivatives, where the patient is suffering greatly. I am not much in favor of that. I prefer a prescription of bromide of potash, 2 drams, chloral 1 dram, simple syrup one ounce, given in about dram doses. That gives you about eight doses. The patient has no ill effects from the drug as you know. They will wake up in the morning without a headache, and the heart beats perfectly naturally. I am sorry that I cannot give a discussion on this paper, but to those who have heard it it was certainly very comprehensive. I am sure that the Alberta Association are very fortunate in having a man who so thoroughly understands this subject as to have given the paper he has given them this afternoon. (Applause.)

DR. GREENFIELD: Mr. President and Members of the Society: As the hour is late now, and I believe there is other business to attend to, I will just say that I am very glad I have heard Dr. Firkins' paper, and I am sorry there were not more to hear it, as he has most certainly dealt with the subject in a very able manner. (Applause.)

DR. FIRKINS: I do not know whether the compliments passed on my paper were deserved or not. I certainly owe Dr. Piper an apology for not having given him my paper. I thank you gentlemen, sincerely for the attention you have given to my paper, and hope to meet you all again at future conventions.

FROM WINNIPEG TO VANCOUVER

A. W. THORNTON, D.D.S., L.D.S., Montreal.
Dean, McGill University (Dental Dept.)

"Vancouver 1477 miles, Winnipeg 6 miles," was the sign that caught my eye, as I left Winnipeg for Calgary, to attend the annual convention of the Dental Society of Western Canada.

The thought that welled up within me as I read the sign was "well, thank the Lord, I don't have to walk."

The Canadian West is a country of great distances, and big men. There is a cheery optimism and a bright vision of even better things to come, that seem to affect everybody and everything. Towns spring up like mushrooms, and the skyline of towns already established is pushed backwards with a rapidity truly amazing to the uninitiated Easterner.

No. 1.

Winnipeg, with its broad, clean and busy streets, and its beautiful residential districts, is simply a wonder, and a magnificent monument to the foresight, ability and business integrity of the men, who, in the past, laid the foundations, and planned the future of a city, that must in the very nature of things become one of the great commercial centers of the civilized world.

Calgary is a thriving place, and the size of its business houses, hotels, apartment houses and private residences speaks more eloquently than words of the faith of the citizens, in the present conditions, and future history of their city.

The meeting, which was held in Calgary, July 7th, 8th and 9th, was, I understand, the largest in the history of the association. The proof, not only of the large number in attendance, but of the character of the men who attended may be seen in the accompanying picture (No. 1)

Perhaps it would be dangerous to mention names, but you cannot fail to recognize the genial face of Clint, of Winnipeg, Doyle, Calgary, Piper, Calgary (formerly of London;) "Jimmy" O'Neil, Fort William; the "only" Bush, of Winnipeg; Blatchford (O'Neil's running mate); Garvin, of the Sunny Countenance; Carmichael (the grave man); Greenfield, the Handsome; the "rale" Charlie Moore; and the smile that won't come off on the face of our old friend Maxwell. But he has good reason to smile. He asked me up to the house, ostensibly to have dinner, but really to see the baby. I don't blame him. I only wish that some men, whom I know in Toronto had a similar cause for rejoicing, but——well I can only pity them.

No. 2.

The program was fully carried out and the splendid character of the papers was worthy of the men who read them.

Dr. Doyle (Calgary), the President, presided at all the sessions with that quiet dignity characteristic of the man.

I had not the pleasure of hearing the first paper on the program, that of Dr. Garrett Newkirk, of Pasadena, California, but in conversation with those who did hear it there was but one opinion expressed, viz.: that it was a sane, practical and very helpful presentation of a subject that is of vital importance to every man in the profession. While speaking of Dr. Newkirk I would like to draw special attention to his paper, or rather his talk (and demonstration) on Personal Hygiene relating to the Dentist.

Dr. Newkirk is a living example of the doctrine which he preaches.

Two years ago he was an invalid, warned by his physician "to be very careful not on any account to ascend above a certain altitude, not to take any violent exercise, not to eat this, drink that, or do the other thing." He began to do his own thinking and study his own conditions. To use his own words he "became as a child again." He played and laughed. He breathed deeply, took exercise in his own room, going through the motions of a golf-player, a blacksmith, a high-kicker, etc. He ate plain food (and not too much of it,) cutting out, to a very great extent, the "dessert" which he described as "the thing we eat after we have eaten enough (often too much) of something else."

No. 3.

Dr. Newkirk stripped himself to the waist, and showed the men present just how he took his exercise.

Suffice it to say, that I have never seen a finer type of physical manhood than that exhibited by Dr. Newkirk, and his robust nature, and sunny disposition were abundant evidences of "a sound mind in a sound body."

I will not attempt anything in the shape of a report of the various papers. All were good, and to the point, some were "intensive."

The social part was not forgotten nor neglected. An automobile drive gave the visiting men a chance to see something of the nature and extent of one of the most prosperous, enterprising and beautiful cities of Canada's great "West."

A banquet at the Alexandra Hotel, on Tuesday evening, was a unique affair, sufficiently formal, that it never lost its dignity, and at the same time, sufficiently informal to be thoroughly enjoyed by all present.

No. 4.

A very delightful feature of the banquet was the presentation to Dr. Newkirk and myself, of a beautiful silver loving cup, suitably inscribed as a souvenir of our visit. The recipients were totally and very agreeably surprised.

After the meeting a number of those present continued the trip westward and a most enjoyable time was spent at several places in the Mountains, of course with such men as McLaurin and Charlie Moore in the party the natural result followed. Ladies took it as their especial privilege to attach themselves to the party and the accompanying picture (No. 2) taken in the valley of ten peaks at Laggan is sufficient evidence that the boys made good. It was the writer's great pleasure to act as "chaperone."

At Banff I succeeded in getting a picture of Greenfield, O'Neill and Blatchford just as they were leaving the station for the hotel. Reading from left to right (No. 3) you are reminded of the well know quotation "from grave to gay; from lively to severe."

It was while we were at Banff that Dr. Charles Moore made his reputation as a second edition of Colonel Cody (Buffalo Bill).

The handsome faces and genial manners of the younger members of our party soon bore fruit, and certain attachments (neither Roach nor Gilmore) were very much to the front.

No. 5.

The two young ladies seen in the picture were daughters of the prairie and easily persuaded the boys to "do" the mountains on ponies. Of course the boys were only too willing to display their horsemanship.

The young ladies were at home in the saddle—but, sad to say, the boys were "out of practice." Then they rode back; but not—not just in as good condition as when they set out.

The saddles were hard and the epidermis tender, the road was long and steep, the ponies were sometimes obstinate and it was hard indeed to "laugh and grow fat."

All enjoyed a bath in the hot sulphur spring, up in the mountains, but Blatchford declared that even this, delightful as it was, increased rather than diminished his stiffness. Dr. Moore is not a fat man. The pony he rode was no "rocking horse" and—well look at his face as he is supported by McLaurin at the highest inhabited spot in Canada. He is trying to enjoy it, but it costs an effort.

It was a unique experience we enjoyed at Laggan on July 12th and 13th. There was a slight snow fall on the morning of July 12th and on Sunday morning, July 13th, the snow was falling heavily. The accompanying picture shows the trees, white with snow, and the passengers at the depot were having all the fun of a snow ball fight (No. 5).

From Laggan we proceeded through the mountains to Vancouver, and the trip was simply a succession of surprises and delights.

I had only one day in Vancouver, so that I did not have an opportunity to call on any of the men of that wonderful city of the West. A sore side caused by a fall in Muskoka was causing me a good deal of anxiety, and I was forced to cut short a visit that I fully expected to make to our confreres in British Columbia. But it was a truly enjoyable trip, and the extent of the country and the great number of new towns, and the evidences of prosperity on every hand, all pointed in but one direction, so far at least as the profession of dentistry is concerned, a continued demand for a large number of properly qualified dentists.

THE USE, DANGERS AND LIMITATIONS OF NITROUS OXIDE AND OXYGEN

HENRY B. CLARK, D.D.S., ST. PAUL, MINN.

This paper, with slight changes, has been read before the Odontographic Society, Winnipeg, Man.; the Southern Minnesota and South Dakota State Societies, and before the Alumni Association of the Xi Psi Phi Fraternity of the Twin Cities.

The use of nitrous-oxide is of course old, but as the methods employed at present are comparatively new, a little bit as to the possibilities and probabilities of the newer methods may help some who are new in this branch of our work. The person who does only one thing naturally learns more of that one thing than the one who does that thing only occasionally, and I have presumed to come here and read this paper only in the hope that I may be able to tell you something of this one thing I do which may interest and serve you.

I shall assume that you are familiar with the history of anesthesia and only refer to that as it may have a bearing upon the methods in use at present. I think I am right in assuming also that those of you who are interested in gas anesthesia have the newer apparatus with oxygen tanks and nasal inhaler and that you think you have safer anesthesia than you did with the old outfits for giving straight nitrous-oxide, which you have up to a certain point.

I want to remind you however, that where nitrous-oxide has made its enviable record for safety, and I might add lack of after effects, is where it has been given with all air excluded, or by whatever method so that the anesthetic has been discontinued when operating commenced. You may push nitrous-oxide almost to the limit if you then discontinue it and begin extracting teeth. The reflex stimulation resulting from the operating will enable the patient to throw off the effect quickly if given a chance, but if it is pushed too far and continued without sufficient oxygen, you soon get on dangerous ground.

Until quite recent times but few men have used the newer methods and these have been mostly men who by constant effort and practice have become very expert. Properly given in correct proportions, I cannot but feel it to be *absolutely safe, in fact* it has so proven itself.

It is the *incorrect administration* coupled with a lack of realization of danger we want to avoid. Many of the older men in this line even at present continue in the old way with straight gas and face inhaler and it is this work and these methods that have so often been referred to as the *record* of gas—as to its safety. I *do not* advocate that the old methods be continued, quite the contrary. I constantly use and advocate the use of the newer ones, but I wish to cause you to realize that one should proceed with some caution in the beginning with these newer methods, to warn you against accepting as gospel all you hear about gas from inexperienced men. I want to emphasize that an element of danger is present when anesthesia is maintained for any considerable length of time, which danger does not exist when a patient is only brought to complete anesthesia and immediately allowed to recover. I am of course referring to gas anesthesia. When straight gas anesthesia is used the patient is not ready for operating until a more or less pronounced snoring is heard and twitching of the muscles of the extremities and sometimes of the neck is seen, a sort of short jerky movement all over. While if everything is working right this condition may usually be produced, a tooth or teeth, extracted and the patient be conscious again in the short space of two minutes. I feel sure many, many times failures are due to beginning to operate before the patient is asleep.

In using the nasal inhaler for operations in the mouth, one may get the patient to sleep with the face inhaler with the mouth prop in place, then begin operating and have an assistant continue with the nasal apparatus, or if he begins with the nasal inhaler, it is well not to place the prop until the patient is partially anesthetized. If the prop is not placed until the patient is partially anesthetized, it is well to tell him you are going to place it after he is partly asleep or he may become excited when you do so, thinking you are going to begin operating when you place the prop. It is also well to hold something over the mouth until nasal breathing is established or even until anesthesia is produced.

It is not necessary to buy a new gas and oxygen apparatus every time a new one is placed on the market. One can get good results with almost any sort of apparatus if he knows how, and if the apparatus lacks some essential points, with the application of a little ingenuity and the assistance of a mechanic the operator can alter it to meet the requirements of a successful one. One essential is a large free passage for the gas in the tubing and valves leading to the inhaler. One well known apparatus was never a success until recently and now is one of the best ones to be had, because while the tubing was large and every effort to make it a success, where the tubing connected to the inhaler the opening was too small. The manufacturer, not being a practical anesthetist or an anesthetist at all, except for the fact that he is an enthusiast regarding gas and oxygen, spent many thousands before this simple defect was overcome. Another essential is the exclusion of air, not only around the rim of the inhaler, but in the exhaling valve, the little disk which raises when the patient exhales and seats when he inhales, must seat perfectly. This is a weak point in most of the outfits. If the edge catches and it does not close so as to prevent air entering when the patient inhales, use your ingenuity and fix it so it does or you will not have success. The exhaling valve especially in the nasal inhaler must be constructed so that it can be closed and locked so as to make a perfectly tight little cup of the inhaler so the gas can be forced through the nose by pressure from the cylinder as occasion requires. If this cannot be done, again it is necessary to change things so it can be if results are to be obtained.

I wish to mention here a few points in the operation of extracting teeth outside anesthesia. First have the gas apparatus ready for use, then plan the case and have the instruments arranged in the order they will be used. If you sterilize by boiling as every one should, I feel that it is permissible to cool the instruments in tap water. I mention this because I think many do not boil extracting forceps because it takes so long to cool them, and am sure many of us when extracting under anesthesia go from a pusy root to one not apparently infected, but will admit this is careless and it would be better to change instruments after removing an infected tooth. A little "stunt" which gives me considerable satisfaction and will you, if you use it, is to paint around each root and flood the cavities of the teeth to be extracted with Tincture Iodine, as means of preventing infection when extracting. Some surgeons rely almost entirely upon Iodine for sterilizing skin surfaces before making incisions and I think it is a very good practice to use it as indicated.

A good mouth opening gag and tongue forceps should always be at hand as in case of obstructed breathing from any cause it is essential that the mouth be opened and the tongue drawn out. The opening gag is also of service when a child refuses to take the anesthetic and parents insist it be given, they may be put to sleep and the mouth quickly opened afterwards if he refuses to tolerate a mouth prop at the beginning. Then in case a patient drops the mouth prop after he is anesthetized, if one has not a good mouth opener which can be inserted between the teeth, it may be necessary to allow the patient to wake up to get the I also have a prop which while not a mouth opener, may be inserted prop placed again and this is somewhat humiliating to the operator. when all uppers or all lowers or both on one side have been removed, leaving the operator free to work on the other side. You all know how hard it usually is to place a prop where it rests against gums from which the teeth have just been removed and I am sure it will be worth your trouble to look at this prop if you are not already using something like it. The idea is to put an ordinary prop on the right side, extract on the left, then insert this on the left while operating on the right.

Something often neglected by dentists is sponging. A surgeon requires all blood removed as fast as it comes when he operates and no person can extract well if the roots are hidden by blood, so have plenty of sponges. Just a few yards of cheese cloth cut into pieces the size of a sheet of writing paper and get some nurse to show you how to fold it, then either keep in a glass jar and put in a few drops of formalin once in a while or sterilize in steam. These sponges, or preferably larger ones, or two or three fastened together may be placed in the back part of the mouth to prevent blood or pieces of root from getting into the throat. They must be large enough however so they will not get into the throat themselves and used in this way will help anesthesia by preventing air entering the lungs via the mouth. A small amount of blood swallowed will almost always produce nausea and blood clots quickly form which if drawn into the air passages may prove dangerous, so in extracting under gas and oxygen anesthesia it is advisable to keep the patient in an upright position.

We aim to get the patient to assume an ordinary comfortable sitting position and do not allow them to strain the neck by tilting the chin either up or down as this narrows and constricts the air passages and hinders a free and easy inhalation of the gases.

In using the nasal inhaler one should have an assistant who should stand back of the chair and passing the right hand directly over the head gently but firmly, hold the inhaler in position while operating the machine with the left hand. This can be done without getting in the operator's way at all if done correctly. The gas bag or bags should be just comfortably filled and the inhalation started with pure nitrous-oxide only adding oxygen when anesthesia is almost complete or when a dusky color of the lips or the features, or cyanotic breathing indicate the need for it. Watch carefully to see that the inhaler fits closely all around the rim and that the exhaling valve seats properly so no air gains entrance and if there is a tendency to breathe through the mouth, this is prevented by holding something, the hand, a piece of rubber dam, or a quarter of a large rubber ball over the mouth. As consciousness begins to be lost, a small amount of oxygen should be allowed to enter the inhaler, just enough to prevent cyanosis—just enough to keep the color good—too much causes excitement, laughing, talking or crying and delays anesthesia. The signs of anesthesia here are not the same as when giving straight gas and we should not look for the same symptoms. If we get cyanotic breathing and color, we will if the anesthesia is to be safely continued, be obliged to use so much oxygen to counteract these symptoms that anesthesia is liable to be lost or become so light as to make it impossible to work. So we work up to anesthesia carefully and look for such signs as the arm falling limply when lifted and the patient not flinching when the eye is touched. This stage may be reached without forcing the gas or in some cases it may be necessary to force it some and also to close the exhaling valve, but when the operator begins the exhaling valve must always be closed and the gas forced more or less as the case demands, some cases demanding more than others. Now suppose we have our patient asleep and the operating going on, how to keep him there and safely is the problem, and this is how it is done if it is possible and it is with but rare exceptions. Your closed inhaler is held tightly over the nose and a constant and steady stream of gas is allowed to pour or be forced to the inhaler. This means the gas bag must be well distended all the time after operating is begun. Then we control the patients condition by regulating the amount of oxygen given. It is desirable to have a small, steady flow of oxygen which will not require adjustment but if this is not possible, by watching the patient carefully and with understanding one may range from giving pure oxygen for a breathe or two if the breathing becomes labored, to shutting off all oxygen entirely if the patient is coming out and still obtain a good result.

This is briefly stated the way we use gas and oxygen. Now a little about assistants. We are located in a twelve story building occupied exclusively by dentists and medical men and frequently are asked to go to other offices to give gas. Sometimes if I am out my young lady assistant takes care of these calls. Recently she did this for a man who had not called us before and next day when I saw him declared that was the greatest gas outfit he had ever seen. He said he had bought and thrown away three outfits but this one seemed to work. A few days later, he having tried the gas several times during the interval, meeting the Doctor at lunch he said, "Say it is not that outfit, its that girl." And so I would emphasize the fact that it is not so much what particular apparatus you use, its the know how back of it. A skillful operator will make a skillful operation in any branch of dentistry regardless of his facilities, while it is pretty true that "the unskilled workman" blames his tools. The question, can I use a modern gas machine without an assistant is sometimes asked. I should say in answer that one may, but not with as great success or satisfaction as with one. There are but few assistants who will not take a great interest in anesthesia if properly trained and instructed so that the cases are successful. This interest may be stimulated by getting them to read De Ford's book on anesthesia and many very good articles are appearing in the journals now. "Oral Hygiene" is running a good article by Dr. A. E. Smith, of Cleveland, at present, which while slightly over enthusiastic is good, and some of the manufacturers of gas outfits keep supplies of reprints which they will gladly furnish interested parties. One should use his own judgment in reading these articles as so many are written with two objects, to instruct and also to sell machines. In training a new assistant I first tell her all I know about gas and oxygen, (this does not take long) then I put her to work with no one around to coach and I do no coaching myself. If I keep telling her what to do she learns to watch me and not the patient. Then I never dare lose sight of the patient, so if she learns to watch the patient, I can, in hard cases, give all my attention at times to the operation. When the case is over and the patient gone I feel free to comment, criticise or praise, and the more praise bestowed whether entirely deserved or not, the better it is apt to be for me I think, for if an operation is not successful and one finds fault, he antagonizes his assistant and spoils the team work. Since I first began this work it has at constantly recurring times reminded me of playing baseball, little situations constantly arise where one cannot act alone and hasn't time to express thought when the only thing that saves the day is that one thing known as team work.

I am told that in years past, frequently some Moses had arisen and promised to lead the army of dentists to a painless Promised Land, and that the dentists have arisen and followed him only to find him a false prophet, and that the greater number of their systems of preventing pain have been discarded. Now I understand one of your members has a system of painless dentistry which I fear must come under this heading. This man is Dr. and his system is as follows: when he has a difficult case he administers per mouth, one-half pint Sp. Fermenti and at the conclusion of the operation he tickles the throat with a feather and up comes the spirits so there is no after effect.

I feel there is some false prophesying going on in regard to gas and oxygen. Somewhat too extravagant claims are being made for it in advantage in their practices, and while an enthusiast myself, I cannot refrain from stating that it is my belief that extravagant claims and over enthusiasm if persisted in are going to cause the extensive use of gas and oxygen to be short lived. Anything for which more is claimed than should be is going to be a disappointment and when it is found that some of the claims and assertions made for it are not true or are exaggerated, there is likely to be a revulsion of feeling that will cause careful men to condemn the whole thing.

In operative dentistry it may often be used to advantage, but when men advocate working for an hour or more with a patient under an anesthetic, they are to my notion advocating a dangerous thing regardless of what the anesthetic is. Hewitt, who is considered a standard authority on gas, considers it is the least dangerous anesthetic, and says that in fourteen thousand cases "he has had no anxiety," but if one looks into a report of his cases, if you read his book, you will find that Hewitt does not mention the use of a nasal inhaler for work within the mouth, and altogether the methods employed by him differ from those mostly used and advocated hereabouts at present. Please do not get the idea that I am trying to discredit the method, the point I wish to make is that when you think of Hewitt as an authority, you must remember that his methods are not the same as the ones we are now considering and consequently a comparison does not mean much.

In the administering of gas I often find that patients express a dread and a fear of taking it. Now this is very foolish of them for we have often been told, in fact I have a very recent paper which was sent to every dentist in the United States, which states that N 20 and O is the only anesthetic which has not produced some deaths. This article refers very glibly to operations of from one to five hours under anesthesia in such a way as to infer that to the elect this were a common occurrence and while it is a good article in regard to analgesia, when its author refers to anesthesia he gets a little wild as I shall show. Along the line of long administrations, let us look into a report of Dr. Teter's cases. Dr. Teter has done more than all others combined to put gas and oxygen where it is to-day. The closing of the exhaling valve is his idea and from this simple thing has begun the first successful use of the nasal inhaler. He is a genius and a pioneer in the use of nitrous-oxide and he, out of his own ripe experience, is not making any of these overdrawn assertions that some of the fellows who over night have proclaimed themselves as authorities on this subject. Here is how Teter's cases run as to length of time: Over three thousand of his cases have been anesthesias of from five to fifteen minutes, and I will venture the assertion that this includes nearly all of his dental cases and some hundreds of his nose and throat cases, and that Teter, who is to my mind the best authority we have, especially on dental uses, would never advocate the administration of gas for more than a few minutes without first proper preparation of the patient—that is, patient without breakfast and with proper hypodermic as for any other general anesthetic, and second, serious enough cause to justify the use of an anesthetic. Over eight hundred and fifty of his cases are said to have been of from fifteen to thiry minutes duration, while only three hundred and forty-six have run over half an hour. And he reports twenty-two cases of over two hours, two cases over three hours, and all of these administrations without a single death.

There has recently been a death in an apparently favorable case for a successful operation in a Minneapolis Hospital and nothing but gas and oxygen was used. A case written up in the Dental Brief, August, 1912, proved to be a gas O. ether case so the gas did not get the blame. Dr. Freeman Allen, of Boston, in February 10, 1912, J.A.M.A. says: "The safety of gas and oxygen anesthesia in dentistry and in minor surgery requiring brief administrations is not to be contested. It is undoubtedly very safe, but during the prolonged administrations required in major surgery, a patient's respiration and circulation undergo many and marked reflex changes, which makes the administration of gas and oxygen in these cases quite a different proposition." Dr. Allen quotes Dr. Bennett, of New York, referring to him as the leading surgical anesthetist of America at the present time: "The writer has administered gas with air or oxygen for operations lasting from a few minutes or more than two hours in several hundred cases, and while he has had no deaths, alarming conditions have several times appeared with such rapidity and so little warning that it seems probable that the general adoption of this form of anesthesia would lead to a mortality nearly approximating if not exceeding that of chloroform and ether. This opinion is strengthened by the occurrence of four such deaths in New York City which have come to the writer's notice within a year. It is therefore probable that nitrous-oxide and oxygen is the safest general anesthetic if restricted to momentary administration of the anesthetic as for dentistry. The prolonged administration of the anesthetic is quite a different matter, however, and at the present time there is not sufficient data to warrant conclusions as to its safety."

Again quoting Dr. Allen: "I have several times encountered in my work the alarming state mentioned by Bennett. They occur suddenly and without warning. The patient suddenly becomes livid; the respiration fails, the pupil dilates, and which I consider the most alarming sign of all, the corneal reflex becomes faint or absent."

Dr. Allen reports a death from nitrous-oxide and oxygen in the following words: "Last year I had a death under nitrous-oxide and oxygen. The patient was a profoundly uremic, almost pulseless man, about to be operated upon for decapsulation of the kidney. After about four minutes inhaling the anesthetic and with the oxygen indicator of the Hewitt apparatus pointing to five, the patient died before the incision could be made, clearly an anesthetic death. It may not be pertinent but may be of interest to know that during ten years of professional anesthetizing, I have had but one other death and that was due to rectal etherization. I know of two deaths, and one very alarming accident occurring within two years in Boston in the practice of young doctors administering gas and oxygen in major surgery."

Personally I know of three deaths occurring under gas oxygen anesthesia, but upon investigation find that in some cases at least some ether has been used with the gas and oxygen. I will however, cite three cases from my own practice where the "alarming state" referred to above, have appeared, and will say that in only one of these cases was any ether used. All these cases were old men, the kind of fellows who might be expected to have an attack of apoplexy most any time, but it makes no difference about that, a death in a dental office is always a calamity to the owner of the office. The first case was a hospital case and just after the operation commenced the patient apparently died, as the surgeon said, "he is gone" and I think we all thought so. We opened his mouth, pulled out his tongue and started artificial respiration with no result. We then turned on the oxygen and holding the face inhaler in position with the exhaling valve closed, forced oxygen in the lungs as they were expanded by the artificial respiration. By keeping this up we finally got the old fellow around, the first sign being a change in color from a blue to a pink shade. As the operation was then finished, using N 20 and O, but plenty of O, I conclude that the near fatal result was due to not using enough oxygen. The next case was a dental case and this was almost a repetition of the other except that as no ether was used—in the first case a slight amount was used, I assumed for a time that sufficient oxygen was used but the more I think of it, the more I think had enough oxygen been used, this case would not have gone bad. I thought certainly the man was dead, but by artificial respiration and oxygen we brought him around. One might think two such cases would make one so careful he would avoid such things but not long after I got very interested in a very hard extraction and although the oxygen ran out, kept on relying on air at intervals until finally my patient stopped breathing and again I had a very bad few minutes. The assistant I sent for oxygen, and alone I started artificial respiration. When the assistant went out, the door locked and I did not dare leave my patient to open it so worked alone until he breathed. This gave the assistant time to go down nine floors into the basement and get some oxygen and return and stand pounding on the door for some time, giving you some idea of the seriousness of the case, also what would have happened had I run for a physician and locked myself out. To sum up the reports of these cases I should say that in my own cases while convinced death would have occurred in each case but for immediate and properly directed steps taken. I feel that gas oxygen is the safest of anesthetics, but that it is the hardest to give correctly and for that reason is dangerous if in the hands of inexperienced people.

A recent addition to the machines is a pressure regulator for each cylinder with a little gauge indicating the approximate pressure of the gases passing to the inhaler. This undoubtedly makes for greater safety and I feel that the deaths which have occurred, or at least some of them, have been caused by the fact that while the oxygen indicator may have been set at a certain point, the oxygen was not coming through. One fault I see in these regulators is that they are too complicated, there are too many things one might forget to do. There is a little outfit made in Minneapolis which regulates the flow effectively and a glance at the dials which are very plainly in view, gives accurate knowledge as to whether the gases are coming through, and it is not possible to have gas coming through without oxygen if the oxygen indicator shows pressure and the amount is easily and quite accurately controlled. This sort of arrangement it seems to me makes for the greatest safety.

Such drugs as morphine, chloral and the bromides are analgesic agents, and analgesic agents are therefore drugs which dull the sensibility to pain, tend to induce sleep but do not cause loss of consciousness except in overdoses as for example when employed as so called "knockout drops." Anesthetics are agents which cause complete loss of consciousness and complete insensibility to pain. Nitrous-oxide gas may now be used both as an analgesic agent, producing much the same effect as these analgesic or hypnotic drugs except that the effect passes as soon as the inhalation is stopped and as an anesthetic. Of late a great deal has been written about mental suggestion connected with analgesia. Here I can see an opportunity of some men being kept from using it as some of the articles on this subject would lead one to believe the dentist who would have success with it must be a sort of hypnotist and sleight of hand performer. We must admit that a large part of the success of an operation, using analgesia, will depend upon the state of mind of the patient as affected by what he is told by the dentist, but instead of attempting any flim-flam, if the dentist first learns how to do the work and can by his actions and manner show the patient that he does know what he is doing and will then have a clear and definite understanding with the patient as to what he expects to do for him and what the patient is expected to do, he will find that will be about all the mental suggestion necessary for sensible patients who are sincere in a desire to obtain some relief from the pangs of necessary operations on the teeth. If a patient is hysterical, unreasoning and unreasonable the case is decidedly one not for analgesia unless you can first conquer and subdue the patient.

Referring again to the dangers of this form of anesthesia I would call your attention to the fact that all of these deaths have occurred while medical practitioners were giving the anesthetic. I am unable to find report of a death in the practice of any dentist, either in general practice or specializing in the administration of nitrous-oxide. When I warn you against working too long with a patient under gas, I mean with the patient unconscious and this does not refer to doing the ordinary operative work, such as cutting cavities, scaling roots, etc., with the patient only taking enough gas to help him stand the pain and not enough to make him lose consciousness. There may be a danger here, but if so I am not aware of it. I should consider, however, that extracting teeth with a patient in analgesia with somnoform inhaler in place was risky.

A very important factor in the success of a case of analgesia is the position of the patient in the chair. The position must be such that no strain comes on the neck or muscles of the back or abdomen, and so that the saliva instead of running back into the throat, goes forward where it can be largely removed by the saliva ejector. It is well to allow the patient to spit occasionally and at the same time instruct him to clear the throat.

This I have found by personal experience to be a great comfort. I think it removes a lot of dust which gathers from cutting and burning and moistens up the throat which naturally becomes very dry after holding the mouth open for a long time.

In giving gas for analgesia do not exclude all air but arrange so air is always being taken with the gas, and oxygen is rarely needed, except at times if the color is not good. The most important points are to impress upon the patient that he is not to go to sleep and then make him do as much assisting as possible by breathing hard through the nose when he feels pain, and avoiding the gas when he finds himself going to sleep. Much remains to be said on this phase of the subject but this paper is long as it is so will only add that I hope it may suggest a few things not considered by you before and that at the clinic which has been given this morning, I hope to have given you a better idea of the manipulation of the apparatus. I hope nothing said may deter any person from using gas and oxygen for it seems to me no modern office is complete without it, *any one* with practice, study and experience may become proficient in its use but that what I have said may help you to realize the dangers and limitations of its use and to determine what is safe, conservative and profitable method of its employment in your work.

In closing I would emphasize this point in using gas oxygen for operations, other than momentary ones, if you would avoid danger, keep your patient's color pink if at all possible, if not possible to keep a pink color, at least do not allow a patient to become blue, or if so to remain so. If this is strictly adhered to I think we may safely say one will run very little risk indeed of ever having a case go bad while giving gas and oxygen.

UNION DENTAL MEETING NEW BRUNSWICK, NOVA SCOTIA AND PRINCE EDWARD ISLAND

ADDRESS OF WELCOME

MAYOR GROSS, Moncton, N. B.

Read before the Union Dental Meeting, New Brunswick, Nova Scotia and Prince Edward Island, Moncton, July, 1913.

Gentlemen:

It gives me pleasure to welcome you to the City of Moncton. It is always a source of satisfaction to extend a hearty welcome to representatives of the various sections of the Dominion to the acknowledged centre of the Maritime Provinces. As presiding officer I now extend to you the freedom of the city. The hospitality of Moncton people is proverbial and you will find the glad hand hospitably extended to you on every side. Moncton, as you will observe, is a beautiful city, growing more rapidly in population than any city in the Maritime Provinces. In extending the freedom of the city I feel that you will not abuse this privilege. I warn you that we have a very active police force. However, if you get in trouble I will do my best to get you out.

I hope that your Convention may be a success and that your professional deliberations may be a source of inspiration for renewed activities upon returning to your honorable duties. The laity are beginning to realize that you belong to a scientific profession and a profession that has lengthened the lifeline of human activities. You are directly, in a surgical and mechanical way dealing with the problem of health and health is a far greater national problem than politics, free trade or protection or national highways.

Health is the normal lifeblood and energy of the country and the healthy human asset is the most valuable asset a country can possess. It is your duty as a body of experts to inform the public mind of the acute and chronic danger of malignant germs resting and multiplying in decayed teeth, and by absorbtion into the system causing tuberculosis and other diseases.

It is the duty of the town, city or state to look into this matter and accepting the presentation of actual facts, and scientific evidence, so apply them that a marked improvement in the general health of the community and nation may be the result.

I trust, Gentlemen, you will enjoy your visit to Moncton and again wishing you every success in Convention.

Dr. W. P. Broderick, St. John, N. B.

Your Worship, Ladies and Gentlemen:

When asked some days ago to acknowledge publicly on behalf of the visiting N. B. dentists the address of welcome of Your Worship, the Mayor of Moncton, a thrill of pride and pleasure coursed through my veins, but just now the responsibility of the task impresses me and I have to regret my inability to do ample justice thereto.

However, in accepting the hospitality and the freedom of the good City of Moncton, extended to us in Convention assembled, I can only say to Your Worship that I thank you most heartily for your kindness and consideration on this occasion. We fully appreciate the fact that you have paid us a great honor by your presence with us to-day, and we realize that it is more or less of a sacrifice on your part when we consider the great demands on the time of a public man.

Those of us who have visited Moncton on previous occasions know very well that your welcome to us is not just a burst of hot air, and for effect only, but that it is a welcome whole hearted and well meant.

I wish to congratulate the City of Moncton on having as its chief executive one who shows himself in touch with one of the most vital questions that came up for consideration by the governing bodies of our cities and our fair Dominion, viz.: the health of the people. As Your Worship has truthfully said "The healthy human asset is the most valuable asset a country can have." A country is rich or poor just in proportion to the health of its inhabitants. The children of to-day are the parents of the next generation and it behooves us to look after the health of these children, so that when they have come to the parental age they may be practically physically strong and rugged, capable of begetting a strong and rugged offspring.

We dentists, practising a branch of the great art of healing, are asking permission from the authorities all over the country to get into the schools so that we can look after the mouths and teeth of these children, and I trust that this privilege will be granted to us.

The dentist to my mind should be considered one of the bulwarks of the nation, one of its chief defences, for every day he is fighting a battle for the protection of the lives of its people, just as surely as is the soldier who goes out on the field of battle. Truly we are not in such imminent danger as is the soldier on the field, but we have to contend with the most insidious of enemies, the micro organism of disease, with thought both for ourselves and those who come under our professional care.

I have dwelt longer on this point than would seem wise, but I want to impress Your Worship that we, as dentists, are always willing to give our time for the benefit of those who would not otherwise receive professional treatment, but that it is up to the state to fit us out with those necessities that we require in order to accomplish the end in view.

I trust that when the question arises for consideration in the Council, we can depend on Mayor Gross to lead the debate in favor of dental inspection of school children's teeth. I am conscious of the fact that Moncton has advanced farther along this line than most of the other cities in the Province, and I am sure that under your term of office it will do even greater things. I am glad that you tempered your address with the caution that you have a very effective police force here. I do not think, however, that this caution is necessary for the N. B. dentists, but you are speaking to the dentists of Nova Scotia and Prince Edward Island also,.and I presume that you intended this caution for them.

The average dentist is a law abiding citizen, but his work is exacting and nerve wracking. The only danger then is that the dentist on a holiday might take a stimulant to quiet his nerves and possibly take an overdose, which might lead to trouble. We have no fear of this, however, in Moncton, for we know that it is a dry city and that you couldn't buy a drink for gold, so we feel safe. Perhaps some of the providential ones have brought their supply with them, and if anything untoward happens, I would advise them to get in touch with some of the Fredericton dentists who ought to stand in well with the Chief of Police of Moncton, for if I mistake not, he won his spurs in Fredericton.

I wish to congratulate the City of Moncton on knowing a good thing when she sees it and in seeing in the dental fraternity the stuff that heroes are made of. I have reference to the City returning to the Legislative Assembly as its representative one of our number, and thereby making history for itself in this Province as returning the first dentist ever elected to the Assembly.

I take great pleasure in congratulating our genial colleague, Dr. Price, on his elevation to this high dignity.

In conclusion I wish to again extend to Your Worship the hearty thanks of the New Brunswick dentists for your kindness to us on this occasion. I promise you we will not abuse it, and I feel satisfied that we will return to our homes with the full conviction that everything possible was done by everybody for our entertainment and we will look eagerly forward to the time of our next merry meeting in the City of Moncton.

DR. GEORGE K. THOMSON, Halifax:

Your Worship, Ladies and Gentlemen:

It is with a great deal of pleasure that I find myself in Moncton to-day. We all know that Moncton is noted for its enterprise and for being the center of the Maritime Provinces, at least as far as railways are concerned, and for other enterprises. I believe that one of the most important enterprises is that of gas and oil wells. At our Canadian meetings we have met one of your Moncton men, whom I remember particularly as having a fluent flow of language. New Brunswickers are generally noted for their eloquence. I think that you are to be congratulated, Sir, upon the fact of the men of the dental profession in Moncton working together in such harmony and accord. I do not know of a town that I have visited where there has been such perfect harmony, and where the dentists have attended so well. In Halifax perhaps one-third of the men, and in other towns perhaps one-half attend. I understand that in Toronto last year every dentist from Truro attended with the exception of two and one of those was sick. This I think a very good showing, of interest, they take in their profession and how they try to advance. As far as attendance in Nova Scotia is concerned, we are rather a versatile lot, we in Nova Scotia, and we attend our conventions from the Sunday School superintendent to the joy rider. I do not say, however, that the Sunday School superintendent always takes care of the joy rider.

It may be of interest to you to know that Nova Scotia has advanced in the matter of dental inspection in the schools during the past seven years; although during that time, Ontario has outdistanced us in the work of attending to the teeth of the poor. In regard to our work in Halifax in this connection I would like to say that we have had dental inspection for seven years and since that time we have been at work revising school books, and educating parents. At present we have been showing that picture, Toothache, which has been very much appreciated by the people who have seen it in Nova Scotia. I think that we will send this film to New Brunswick as soon as we are through with it in Nova Scotia, and I think it would be a splendid idea to have it in Moncton.

In conclusion I want to thank you very heartily for the warm welcome which you have extended to us, we appreciate it very much, and will try and deserve your kindness. Thank you very much.

Dr. J. S. BAGNALL, Charlottetown, P. E. I.

Your Worship, Ladies and Gentlemen:

It affords me very much pleasure indeed to speak in behalf of the dental fraternity of my own Province and I thank you for the kind way in which we have been received. The Corporation and Mayor, as well as the dentists of Moncton have joined in giving us the warmest welcome. This Convention seems to be something that has struck my confreres and myself very strongly and we have turned out in very good numbers, and I am backed up by fully 50 per cent. of our men from the Island, and not only do I think that we have the largest representation of dentists, but I am quite safe in saying that we have the largest percentage of wives of the dentists. I do not know whether they have come to enjoy the good things of Moncton, or perhaps they may have come to see that everything is all right.

My predecessor has gone so fully over this ground in extending the thanks of the others that there is nothing very much left for me to say. I hope that this meeting will be inspiring and encouraging to all the dentists. Those of you who will have the privilege of hearing my paper on the early history of dentistry in Prince Edward Island will see that there has been quite an upward movement.

Hoping that we will all be able to get out of Moncton as well thought of as when we came in here, and hoping that everything will go "as merry as a marriage bell," I have very much pleasure in thanking you again.

PRESIDENT'S ADDRESS OF NEW BRUNSWICK DENTAL ASSOCIATION.

H. S. THOMPSON, D.D.S., L.D.S., MONCTON, N. B.

Mr. Chairman and Gentlemen;

It is with a wish to conform to custom and not with a feeling that I have some special message to deliver that I am following the precedent established by my predecessors in delivering you an address at this your twenty-third annual meeting of the New Brunswick Dental Society.

If in this address I can inspire anyone with renewed enthusiasm or hold before you ideals that will stimulate you to put more zest and better effort in your work then will I feel that this truly has been a thesis and not a mere review of current happenings. I feel that we, the members of the dental profession, in the Province of New Brunswick, and also Maritime Provinces are at the cross roads of our history for a decided change is taking place in our profession and the feeling of selfishness is being buried and the spirit of altruism growing. If we follow the first one, Selfishness, we will perhaps follow the lines of least resistance, which may bring us to a condition of greater affluence, and give us more personal enjoyment, but if we follow the road to Altruism it may cause us some self sacrifice, but will place our profession on a higher plane and give each of us the self-satisfaction of having contributed in some slight degree to the uplifting of mankind.

For years our Society meetings and the same in the history of every other society have been mere conventions for the purpose of finding out shorter methods of doing our necessary work, in order to make it easier for us, how we could regulate our fees in order that we could enlarge our income, how we could shorten our hours so that we could have more time for our own selfish pleasure and enjoyments, but this order of things has been slowly changing and to-day we meet as an association not to consider our own selfish ends, but to consider what we can do for the benefit of our fellow men and how we can do it in the most effective manner.

The seriousness and earnestness with which our very best men are entering into this new order of things, denotes that we are going to make the most of our opportunities and make Altruism and not Selfishness the keynote of our endeavors. A glance at our program for this meeting will convince us of the truth of this thought for here we see hours devoted to the reading and discussion of papers on the education of school children on Oral Hygiene, free examination of school children's teeth, free dental clinics for the poor, etc., and when we read the reports of other societies we find them likewise devoting valuable time to such subjects. Not only this, but we have some of our very best men in our Dominion of Canada devoting their time and ability in the administration of the C. O. P. A. an organization that is doing a wonderful work in this country of ours. (We are fortunate in having one of its representatives with us now, Dr. Webster). They are providing literature for free distribution in the public schools, charts for the proper teaching of Oral Hygiene, and the giving of lectures, when necessary, to the mothers and fathers on the importance of this great work, and surely if this great movement which seems to be spreading all over our country continues to grow we must each one individually feel his responsibility to his neighbor, and then and then only can we lay claim to the place among the professions to which we rightfully belong. And we in New Brunswick are fully alive to this great work. By the formation of local societies in the cities we have been able to give lectures in the public schools and also to nurses in the hospitals, and I am looking forward to the time when every town in our province where there are two or more dentists will have its own local organization, for only by such united efforts can we accomplish this great work.

And now let me say a few words on Community Organization, for by it we can make the Province of New Brunswick second to none in its standing in the profession. For in Community Organization we meet and forget all those little narrow feelings that we had for the other fellow. We find the better side of his nature, and he ours. We talk over the difficult problems that have been bothering us and receive help from each others experience and in that way bring about the condition of things best described by the poet in the verses entitled, "Not Understood":

"O God that man would see a little clearer,
Or judge less harshly when they cannot see;
O God that men would draw a little nearer to one another,
Then they'd be nearer Thee and understood."

And surely if we buried that feeling of jealousy and suspicion and promote a feeling of harmony and good will we are bound to grow bigger, mentally our range of vision will grow broader and we will be able to see out beyond our own office to the other fellow's office and beyond that to the great world at large where lie the opportunities to develop and advance the profession that we are proud to be identified with.

In our province the year just closed has been one of steady progress. Our society's meetings are growing in interest year by year until this year we present you with a program that will rank with any society meeting in our country.

At your last year's meeting you empowered our Executive to communicate with Nova Scotia and Prince Edward Island to bring about a joint meeting of the three societies, that our efforts have been successful is shown by our program which we present to you to-day, the results you will be able to judge for yourself.

I predict that this joint meeting will arouse an enthusiasm that will cause each member to go home with renewed vigor and a determination to spread the gospel of Oral Hygiene, and Oral Hygiene means Oral Health, and Oral Health means greater efficiency and a strong mind, and a strong mind means good citizenship.

I thank you, Gentlemen, for the trust you have imposed in me in making me President for the year 1912-1913 and I hope that this society may from year to year go on accomplishing great good both for the profession and for our province at large.

PRESIDENT'S ADDRESS OF THE NOVA SCOTIA DENTAL SOCIETY.

W C. OXNER, D.D.S., L.D.S., Halifax, N.S.

Gentlemen of the Nova Scotia Dental Association:

It is with a great degree of pleasure that I call together this twenty-third annual convention of our Association.

As you all know, the time at our disposal for this meeting is necessarily short, therefore I hope our business may be dispatched with promptness so that we may be on our way to Moncton to attend the union meeting.

Naturally the energies of our Executive Committee for the past year have largely been expended in this direction. Working in conjunction with the committees from the other provinces, and that success has crowned their efforts, I am fully assured.

Judging from the program, we are to have the pleasure of attending the best Dental Convention ever held in the Maritime Provinces and the committees are to be most heartily contratulated on this attainment.

In glancing back over the past year there seems to have been no special innovations in dental practice. There is, however, a strong tendency towards the employment of more scientific methods in the various branches of our daily practice, but the outstanding feature in the dental world, the one which has pervaded all gatherings and which has filled our literature, is the oral hygiene campaign, the endeavors to educate mankind to their dental needs and to establish free clinics to meet the growing demand.

In our own province, as you will hear in the report of the Committee on Dental Education of the Public and School Children, the educational campaign has steadily been going forward until I believe the time is now ripe to bring this matter to the attention of the authorities for the establishment of a free dental clinic. I am not prepared to state in just what form or in connection with what institution this clinic should be established.

That would be a matter to be thrashed out by the Educational Committee, and possibly the civic authorities. I would, however, like to say that in my opinion the city of Toronto through its educational committee has correctly solved this problem. Let me quote you from their report: "As a result of this educational campaign the outstanding feature is the establishment in Toronto of a free dental clinic for the poor." This is no empirical accomplishment for the maintenance is provided for by the city.

The best results will be obtained because the patients do not depend upon the voluntary services of the profession, but dentists are appointed to do the work and are paid by the city.

Toronto is we believe the first city on the continent of America to have a free dental clinic carried on by the Government. Now, gentlemen. when we consider that Nova Scotia through a paper by one of our own members, Dr. G. K. Thomson, was probably responsible for the formation of the Canadian Oral Prophylactic Association, which in turn is the father of this splendid movement, I believe, to use a slang phrase, "it is up to us," up to this association, to follow in the footsteps of the good example set by the city of Toronto.

To this end during this convention I hope to see a resolution passed which will lead to the establishment of a free dental clinic in the city of Halifax. With one such clinic an assured success, it will be only a matter of time when other towns in the Province will fall in line.

I am pleased to announce that at a meeting of the Nova Scotia Association held in Halifax yesterday after a thorough discussion, this matter was placed in the hands of the Educational Committee and I believe will be carried to a successful issue in the near future.

In regard to our Dental College you will hear from Dean Woodbury's report that our offspring is in flourishing condition. You will recall that at our last meeting we ratified the agreement to be taken under the ample wing of Dalhousie and made a teaching staff of that University.

I am very pleased to say that the union is a happy one. The most friendly relations born of mutual respect have been established between our faculty and all the others.

Our students also are naturally taking their places in every phase of the University life, and taking all things into consideration I feel that we have reason to congratulate ourselves.

Apropos of this subject I was much gratified to learn that the other provinces are so kindly disposed towards us. To use their own words, it is regarded by them as "our own college."

As an example of this kind feeling I wish to quote you from the presidential address of Dr. F. C. Bonnell, delivered at a meeting of the New Brunswick Association held in July, 1912.

He said, "Now let us take into consideration the welfare of our own dental college. When I say ours I mean it. If we do not take an interest in it, who will? I think it is the duty of every man in New Brunswick and the Maritime Provinces to do all that he can to help build up the Maritime Dental College at Halifax."

Gentlemen, those are cheering words, we like to hear them, and our college must prosper with such sentiments to back her up.

Now, a word in regard to the attendance at our annual meetings. It has been a matter of no little regret and disappointment to our Executive Committee in the past at their failure to sufficiently interest the majority of our dentists in the province to regularly attend the meetings. When men are individually approached they offer various excuses.

Some say, I cannot afford to attend; others, why should I? what have you to offer? To the former I will say, they cannot afford to stay away; to the latter query there are many replies; I will be brief, however, I claim that there is not a man who can attend a convention and pay attention to the papers, with their discussions or to the clinics, who will fail to carry back something of value to his patients.

This to him in turn is worth a direct money value, for the people will seek out the man with up to date ideas. To my mind, however, this is the least valuable asset to be gained. As you all know dentistry is a trying profession and the man who sticks at it constantly will in time become a mere machine. At the close of a hard day's work one is always tired, often depressed and discouraged. A few days off will work wonders and here is where the society meetings come in, for it is my belief that no one thing will send a man back to his office so mentally refreshed, so filled with enthusiasm to become a better dentist and to be of more service to his fellow men than a few days spent with his brother practitioners in convention.

For the betterment of these conditions we look to the younger men who are yearly recruiting our ranks. We welcome them, may they all be enthusiasts and may the day soon come when every man will be eager to do his little share toward making the meetings in Nova Scotia second to none on this continent.

And now it is with the deepest regret that I refer to the passing away from our midst of one of the most honored and beloved members of the Association.

I refer to the recent and sudden death of Dr. Hibbert Woodbury.

In his going the society has sustained an irreparable loss. His name is so well known in connection with the dental history of Nova Scotia and his kindly face so familiar to us all that I will not attempt to say more than that though every man present, with whom he came in contact, will sorely miss his cheerful, helpful presence, there is consolation in the knowledge that his influence for good and for all that was best in our profession will ever remain a green spot in our memories.

Reference has been made to the Union Meeting and I hope to see a large representation from this province in attendance, for the efforts put forth by the committees and particularly by the men in Moncton is worthy of a very large gathering.

It affords me great pleasure to extend my thanks to our secretary and our executive committee for their efforts in behalf of the success of this meeting and also to express my cordial appreciation of the honor you have conferred upon me in making me your president for this year. Gentlemen, I thank you and close with the toast of Tiny Tim, "God bless us every one."

Dr. Lodge, of Prince Edward Island, on being called upon to address the Convention, spoke briefly as follows:

Mr. Chairman, Ladies and Gentlemen:

I was not aware, until my arrival here that my name was down upon the program of this meeting. Some of the members of the Committee spoke to me about it on my arrival, and I said that I thought it hardly worth while, as I had not come prepared to give an address. However, I can assure you that I am very glad to be here to-day, and to take part, if only as a spectator.

PRESENT DAY POSSIBILITIES AS APPLIED TO CROWN AND BRIDGEWORK

HART J. GOSLEE, B.S., D.D.S., Chicago, Ill.

Read before the Toronto Dental Society, November 1, 1913.

The message which I have the honor to bring to you to-day does not teem with new or original thoughts, nor yet does it deal at all with abstract problems or theories. So much has been written upon this subject of casting as applied to the construction of crown and bridgework during the past five years that it would be difficult, I think, for most anyone to bring to you much which might be called absolutely new. My ambition, therefore, shall be directed more toward again giving emphasis to certain lines and methods of procedure in the concrete rather than to presume to offer anything of a startling original character; to urge you to adopt and perfect present methods rather than to look to and hope for new ones; and to impress upon you the extent to which my own methods and practice have been revolutionized during this period. This has been so marked, and my results have been so much better, that former chaos and empiricism have been forced to give place to order and method in my practice, the whole resulting in a degree of systematic procedure which offers and insures more or less definite results.

Since it is *results* which we seek for, after all, and since the application of casting together with other contributory improvements make it possible to more perfectly systematize our work and to obtain results heretofore impossible, it is essentially my purpose at this time to call attention to present-day possibilities, what they have meant to me, and what they may mean to you, and to present to you in crystalized form the experience of a number of years; the practical side of crown and bridgework shorn of any garlands of theory.

As I look back over the methods of the past and compare them with those of the present; as I think of the empiricism which tinctured our procedures then, and of the simplicity and practicability of our methods of to-day, and as in all the results obtained then and observe those which are possible, I am grateful for having practiced dentistry in this era, and I bow with reverence to those who have made such improvement possible. I am not only grateful from the view point of the dentist, but also for the one who, though innocently, yet properly, profits mostly—the patient.

Whilst the epoch of "painless dentistry" has not yet been reached—excepting in the abortive claims of the charlatan—still the advent and the skillful application of casting have done more to lighten the burdens of the patient, and to diminish the discomfort usually attending dental operations of any character, than any other effort, and this to an extent which will cause the heretofore intuitive dread of the dental chair to occupy no place in the minds of future generations, unless it be only as an historical reminder of the dark age of dentistry.

And yet, with all of the importance which may be attached to this phase of the application of casting, it still remains that the greatest value lies in the fact that better adaptation and greater strength in our work is made possible and easier, and that these two primary prerequisites are absolutely essential to any class of work which must withstand the varying requirements of masticatory stress and also meet the demands of modern cosmetics.

Modern cosmetics as applied to dentistry means the art with which the artificial may be concealed. The advent of porcelain has made it possible to so closely simulate the natural teeth as to conceal the artificial, but unfortunately porcelain does not possess the inherent element of integral strength which is demanded by average masticatory requirements. Many of us learned this from sad experience in the early wave of enthusiasm which accompanied the introduction of porcelain crown and bridgework of a certain type.

This experience taught us that to obtain the advantages of porcelain it must be used in its strongest possible form, and even then that it must be adequately supported and protected by the metal substructure.

The degree of accuracy and facility with which the required adaptation may be effected, together with the possibilities for obtaining adequate strength and desired form offered by the casting process, now enable us to use more porcelain and less metal than we formerly could do with safety, thereby subscribing to the cosmetic requirements to a high degree without sacrificing either of the other requirements of adaptation and strength to any appreciable degree.

Always believing that the strongest possible form of porcelain tooth would be one in which no metal pins were baked, and that increased strength would obtain from cementing the tooth to the basic structure instead of subjecting it to the heat of soldering, or even of casting to it. I have been able to induce the manufacturers to make the tooth which is now known by my name, and the introduction and application of this form of tooth, combined with the casting process and used with good judgment and careful technic, has completely revolutionized and simplified my methods as to enable me to obtain results heretofore impossible, and to cause me to offer you the procedures which now constitute my methods of practice.

I have purposely emphasized the belief that a porcelain tooth or facing which has no metal pin or pins baked in it is stronger than one which has, and also that one *cemented* to place is stronger and less likely to become fractured than one which has been soldered or one which has been subjected to heat in casting. I also want to especially emphasize that casting directly to porcelain teeth of any form is fraught with danger and uncertainty, and that no possible advantage over the tooth which is cemented to place, providing its supporting base is well adapted, is to be thus obtained.

In addition to the greater strength obtaining in the tooth cemented to its base we also have the advantage of replacement, which is of paramount importance.

The methods which I now use are so few and so simple, and the results are so satisfactory, when compared with our previous efforts, that I am ambitious to aid all who may be interested. To this end, permit me to briefly epitomize the suggestions which I have previously made from time to time and the procedures which I now follow.

SINGLE CROWNS.

For all teeth within the range of vision, where porcelain is demanded, the porcelain replaceable or interchangeable crown, *with cast base*, and with a narrow band, is used wherever possible, and this constitutes a very large percentage of cases. Notwithstanding the almost daily controversy which the question of bands on dowel crowns brings forth, the frequent occurrence of fractured roots has caused me to have made an invariable practice of using a narrow band on all cases, and no sane objection can be offered to the use of a band—*providing it fits*. In my opinion, inability to properly fit a band constitutes the only real good reason for condemning their use, excepting in those cases of extensive recession of gum tissue and process, or in cases where pathologic conditions or the age of the patient warrants only more or less temporary efforts on our part. This type of crown is undoubtedly the strongest, most artistic and most universally applicable substitute for the natural tooth at our command, and in all respects is excelled only by a skillful adapted "jacket" crown. Indeed, for the average dentist it is better and possesses advantage over the latter in that immediate replacement in the event of mishap is possible.

In the construction of all forms of porcelain crowns with cast bases much difficulty has been and is now being encountered in holding the wax to a close adaptation to both the root-end, *particularly at the periphery*, and the base of the crown, and that the same time have it hold the dowel or dowels in the proper position to insure correct alignment.

These essential features are usually so difficult and so unsatisfactory as to have caused me to adopt and suggest a technic which eliminates any uncertainty, which ensures accuracy, which is applicable alike to all cases, whether a band is required or not, which makes the fitting of a crown to the most difficult root as simple as to the easy one, which relieves the patient of any discomfort whatever, and which, when in connection with the type of tooth mentioned, has proven the most satisfactory method of crown construction I have ever followed.

In the various methods now generally used and advocated, good, accurate results are difficult to obtain, because the very plasticity of wax makes it possess a tendency to *spread* when subjected to the pressure necessary to mold it to a clean, close adaptation.

This tendency has made it practically impossible for me to obtain a satisfactory degree of accuracy of adaptation to the root-end. However, such difficulty may be entirely overcome, and absolute accuracy obtained in all cases by first adapting a cap of *thin* pure gold (about 36 gauge) to the root-end. If this is carefully done, and surface thus obtained will always be a closer fit to the root than can possibly result from the molding of wax to it, with any investment material now procureable, and this surface will require no finishing whatever after casting, and the drown will readily snap to position on the root when finished.

Also, such a procedure reduces to a minimum the possibility of any change of form which may result from the warpage or shrinkage of the gold or alloy used in casting, and this is a very important consideration.

While the adaptation of the cap may be effected by burnishing directly to the root, in the mouth, the best, most accurate and least painful results are always to be obtained by *swaging*. This necessarily involves the impression and die *or indirect*, method.

In cases where the space between the cap and the base of the crown is very small, or where it may not be convenient or seem necessary to cast the base, good results may be obtained by soldering instead of casting.

In such cases the porcelain also should always be backed up with 36 gauge pure gold by burnishing or swaging; the crown and backing then placed in position in relation to the cap, the porcelain removed, the case invested, and the space between cap and backing then filled with 22 or 20 karat solder.

This method is particularly useful in very short bicuspids, but where there is sufficient space to permit of casting, the results thus obtained are perhaps more uniformly strong.

This procedure reduces crown construction to a definite system; a system which requires but little time, which is simple, and which ensures a more or less perfectly adapted base, obtained without any of the usual discomfort to the patient. This latter feature is rarely possible when *burnishing* directly to the root-end is attempted.

The construction of a crown by this method involves but three short sittings, and the best results are to be obtained by doing all the work directly in the mouth.

At the first sitting the root is prepared, the root impression taken, the mold number and color selected, and a temporary crown mounted. This latter feature is desirable as a means of packing the soft tissue away to afford and insure a free exposure of the root-end at the next sitting, as well as to relieve the patient of the temporary embarrassment. The amalgum die having been made and the pure gold disc swaged and tooth selected *in the meantime*, at the second sitting the cap is fitted to the root, the dowel and tooth adjusted to the requirements, the dowel then soldered to the cap, and the relation between the tooth and cap secured with casting wax. The crown is then cast, the tooth cemented to place and finished, and the final mounting made at the third sitting.

In cases of molars, upper first bicuspids, and malposed teeth where one dowel will not enter the canal and at the same time sustain the tooth in its proper alignment a separate short dowel must be used for the tooth in addition to the one that enters the canal, and each should be allowed to remain as long as possible to permit of the proper adjustment of the tooth, and insure strength. In upper first bicuspids, if the dowel is placed in the buccal instead of the lingual canal, the adjustment will usually be facilitated.

Whilst there is no objection to backing up each tooth, in addition to swaging the root cap, and filling in between them by casting, it is not usually necessary. Such a procedure offers the advantage of insuring the ready adjustment of the porcelain tooth to its metal base, but at the same time it holds the tooth just that much further away from the root, which may result in the display of a line of gold in the completed crown.

GOLD CROWNS.

For second and third molars—and even first molars, when the presence of gold is not objectionable—the cast gold crown affords results far in advance of anything heretofore obtained. In the construction of gold crowns by the casting process, however, the fit or peripheral adaptation is, because of the spreading tendency of wax, *always best obtained* by previously fitting first form of band to the root and then casting directly to it.

When an exaggerated contour is not required and it seldom is, the band may be made of 28 gauge, 22karat gold, and fitted and contoured in the usual manner. When in position on the root, casting wax is then molded to the end of the root inside of the band, and this procedure followed by an imprint in the wax of the opposing teeth in all of the movements of mastication.

After the band has been removed, its interior should be fitted at once with casting investment material, and the occlusal surface properly carved, after which it may be invested and cast, using for the casting the same grade of gold of which the band was made.

If the band is thoroughly clean before investing, and the gold to be cast is of good quality and highly fused before casting, a physical union will probably obtain, but if it does not, a small bit of 22 karat solder placed inside will insure the same.

A thin disc of platinum foil placed inside of the band and over the end of the root just previous to molding the wax will insure a smoother surface, and therefore a better seating of the finished crown after casting, than is to be obtained from investment material alone.

Where the root is very short, and the occlusal surface would therefore be unnecessarily thick, resulting in a finished crown which would be much too heavy, any surplus of wax may be removed by using a large round bur in the engine, or the Roach suction carver, just previous to filling the interior of the band with investment material.

Where an exaggerated contour is desired, the best results are probably to be obtained by first closely fitting a platinum band, about 32 gauge, to the root, trimming this even with its occlusal plane, and then soldering a top to it, thus completely boxing up the end of the root with a close-fitting platinum cap. An impression and bite may then be taken and when the models are obtained all of the form and contour desired may be made with wax, and the casting made directly to the platinum cap.

These two general types of porcelain and gold crowns will meet the requirements of single crown work in a very large majority of cases, and the results are far more accurate than are to be obtained by any of our former methods.

FIXED BRIDGEWORK.

In fixed bridgework, which constitutes an assemblage of attachments and intermediate dummies, our work may also be simplified, because three general types of attachments and three general types of dummies will be found to meet the requirements in an exceedingly large percentage of cases.

ATTACHMENTS: The methods of obtaining attachment to the supporting teeth or roots embrace the *porcelain replaceable crown* with dowel and *cast bases*, the construction of which has just been described, as applied to the *roots* of anterior teeth, or when it is impossible or seems advisable to preserve the natural crown; the *inlay*, when the attachment is to be made to the *crown* of a natural tooth, which is good practice *only when the remaining natural crown is sufficiently strong* and the *gold crown* for molar teeth when the use of an inlay is for any reason not indicated.

When an inlay is to serve as an attachment, the cavity preparation is, of course, exceedingly important, and some form of *post or posts should always be used* to insure stability and as a provision against the inlay becoming loosened by the strain and torsion to which it is to be subjected.

The general applicability of the inlay as an attachment for bridgework has been a subject of considerable discussion ever since casting became an accepted practice. That it will serve the purpose as well as, and in some respects perhaps even better than, a full crown there can be no doubt, providing however that its adaptation and stability are always insured.

The former adaptation depends, first, upon adequate and proper cavity preparation, and then careful technic in making the inlay; and the latter stability depends upon the use of a proper inlay in casting, and upon pins or posts of some form, for the reason mentioned.

Wherever the walls of the supporting tooth are *sufficiently strong* to insure permanency; whenever a suitable cavity may be properly prepared, the inlay, well-seated and securely anchored, and made of a hard alloy, such as five per cent. platinum in pure gold; coin gold, or 22 karat gold, I am of the impression that such an attachment may sometimes be even better than a full crown because less mutilation of the tooth is required, and no possibility of gingival irritation is afforded.

The cavity preparation for inlays to be used for the purpose of anchorage does not differ essentially from that for a simple filling excepting that the *buccal, lingual and cervical* margins must be so extended as to carry the margin between tooth and filling beyond any actual contact of the artificial tooth to be supported by it, in order that each and all of these margins may be exposed, for hygienic reasons. The possibilities for obtaining a good close adaptation of the inlay to the cavity margins, and thus insure permanency in the attachment to the natural tooth, are such as to relegate the open-face crown, the "hood" and the so called Carmichael attachments, etc., to the Archives of the past.

"DUMMIES: As dummies for fixed bridgework, three general types will answer the requirements in all cases.

The all porcelain replaceable crown and bridge tooth with cast or otherwise well re-enforced backing is adapted to all positions in the arch where the conditions of absorption and occlusion will permit their use, and is undoubtedly the ideal form of artificial substitute. Backings for these teeth may be made in sections involving the number of dummies between the attachments, which should never exceed three, possibly four, but better form, larger and therefore more hygienic interproximal spaces, and less display of gold, are to be obtained by making each backing separately.

As a means of preserving the proper relation of the short sustaining post which holds the tooth to the backing, and of insuring a smoother surface adaptation of the backing to the porcelain than the ordinary casting investment materials afford, in using this type of "dummy" a thin backing of about 38 gauge, pure gold, should be previously swaged or burnished to the tooth, and the post soldered to it. It is then always necessary to allow as much surplus end of the post as possible extend beyond, in order to insure strength in the final attachment of this essential part of the completed backing.

Casting wax may then be molded to the required form, and the casting made directly upon and against the thin gold backing, by which method any distortion or possible misfit due to shrinkage or warpage is overcome, and the most finished, accurate and reliable results are insured.

In the use of this type of tooth in all cases in the upper arch where complete absorption has already taken place, the most sanitary form of structure is usually to be obtained by molding the wax so as to restore or approximately follow the lingual form of the tooth, but tapering down to a narrow saddle at the point of contact with the soft tissues. As a rule, and contrary to the opinions of some, however, wherever the adaptation is good, such a type of construction will be found to be far more sanitary than the usual recessess, shelves and pockets so common in the ordinary methods.

In this more or less typical fixture it will be observed that practically no gold is displayed anterior to the second molar, and yet that a maximum of strength presents throughout.

In cases where complete absorption has not occured a saddle is, of course, contraindicated, but in these cases the neck of the porcelain tooth should accurately fit and bear *firmly* upon the soft tissue, and the lingual surface of the backing should then be so formed as to be as nearly convex or self-cleansing as possible.

For those cases in the anterior region where abnormalities of occlusion or elongation of the opposing natural teeth demand a *thin facing*, the ordinary type of long pin facing may be used. In its use, however, the best results are to be obtained by previously backing it up with thin pure gold, adding wax to this to the desired form, removing the facing, placing graphite points in the holds which receive the pins, and casting. The pins been assembled with solder, the facings may be connected to position, may then be threaded with the Bryant tap and, when the backings have thus obtaining all of the previously mentioned advantages of cementation combined with better form and uniform strength.

In addition to these, for those cases particularly in the lower arch, and in exceedingly "close-bited" where cosmetics is not a factor, or where the extent of absorbtion or the elongation of opposing teeth precludes the use of porcelain in any form, the all gold, cast dummy may be used. Such dummies may be made to conform to the requirements of occlusion, adaptation, in wax, and then invested and cast in one piece. This type of "dummy" is useful in supplying the lower second bicuspids and first and second molars, and may include only the occlusal surface, thus forming the so-called "self-cleansing" type of bridge, or the entire tooth type of construction is indicated only where there is an excessive degree of absorption, which will permit of sufficient space between the gum and occlusal surface to insure self-cleansing properties, and wherever this space is not great enough to be easily kept clean, direct contact with the gum will afford a more hygienic result. In other words, there should be plenty of space, or none at all. A typical case of this kind, showing the use of all-porcelain dummies, in connection with inlays.

With these the problems of attachments and of intermediate dummies for almost universal application is simplified and systematized.

The remaining feature incident to the construction of all forms of fixed bridgework involves only the proper assemblage of the various parts. While some are casting all attachments and backings with an alloy of five per cent. of platinum and pure gold, thus using no "solder" whatever, still a good grade of 22 karat gold or coin gold may be used with equally good results. When either of the latter is used, the final assemblage may be affected with 22 karat solder, *and providing there is absolute contact between all of the parts to be united* the procedure is thus somewhat facilitated and the results are uniformly good.

REMOVABLE BRIDGEWORK.

The same general ideas are also applicable to the construction of removable fixtures.

For this class of work, also, three general types of anchorage to the supporting teeth or roots will be found to adequately meet the requirements of the average case. These embrace "clasps" the "telescoping tube and split post," and the various forms of manufactured attachments.

Wide clasps encompassing three angles of the tooth, provided with an occlusal rest, not cast, but made of heavy rolled clasp-metal alloy, probably afford the very best means of obtaining anchorage to the natural or artificial crowns of bicuspids and molars.

That clasps should not be cast is especially emphasized, because the molecular rearrangement resulting from casting most of our present alloys destroys to a greater or less extent the very qualities of strength and resilence demanded of them, and which undoubtedly obtain best in a rolled or drawn metal or alloy.

In all forms of removable bridgework or partial dentures, where clasps are used, however, some form of occlusion rest is necessary as a means of providing against subsequent settlement of the case. If this precaution is not observed, complete loss of occlusion and usefulness will soon follow. A most secure and useful form of clasp attachment is shown.

The telescoping tube and split post attachment is useful when confined to the *roots of the six anterior teeth.*

The Roach, Morgan and other types of manufactured attachments will also be found valuable when used in connection with either porcelain or gold crowns or inlays on the cuspids and bicuspids and the Morgan attachment is particularly useful on cuspids and bicuspids where no teeth posterior to the one carrying the attachment remains.

In addition to these I call your attention also to a most useful method of attachment which is more or less universally applicable, the one now known as Gilmore's.

This consists in utilizing the grasping principle of an open tube with straight and parallel sides, which is the removable part of the fixture, in combination with a round wire,, of about 12 gauge, attached to and therefore a part of the "fixed" portion of the structure, but lying in a horizontal position instead of in a vertical one, in its relation to the supporting fixture.

It is easily applied, easily tightened when loosened by wear, takes up but little space does not require absolute parallelism when more than one is used on the same fixture, and is applicable alike to either gold or vulcanite work.

When the type or types of attachment thought to be best indicated have been selected, adapted and completed, the casting process then offers splendid opportunity and great possibilities for the subsequent formation of the body of the fixture, and in this connection I believe that the successful casting of large pieces or of bases of any size, is but a question of the development of proper technic on our part.

CARE OF BRIDGEWORK: The proper care of dental bridgework is often and indeed usually wantonly neglected by the patient. The dentist, however, is largely responsible for failure to observe the same degree of hygiene in mouths in which either fixed or removable structures are worn, that is and should be observed in the mouths of those who are so fortunate as to possess a full complement of good natural teeth. To this end the dentist should properly instruct the patient as to the necessity for and best means of keeping the mouth and the work in a thoroughly sanitary condition, as an invariable practice and a religious duty.

DISCUSSION OF DR. GOSLEE'S PAPER.

Dr. Woods in discussion called attention to the exactness in detail of all Dr. Goslee's work. Such work, in his opinion, must sooner or later command a busy practise. He could not understand how a cap could be made to fit the end of a root when the impression was taken before the root was completely ground down. He preferred soldering the cap for the root to the swadged coping for the porcelain, to casting between these pieces because of the saving of time and the more secure union. A sitting was saved by adapting the coping to the root direct instead of taking an impression. In gold inlays for abutments he preferred a key pin set after the insertion of the inlay and set at a different angle to the inlay. A Carmichael preparation in a vital tooth with a key pin is often very satisfactory. He did not like either the old-fashioned bridge nor the saddle on the gum, but preferred bringing the bridge to a thin edge along the ridge where both the buccal and the lingual surfaces can be kept clean. There is nothing for food to get under.

DR. HUSBAND pointed out that if gold is cast against the thin pure gold which is swadged to fit the porcelain or root end that there would be a drawing up of the pure gold or a complete fusion of it, and rough surface left or a complete mis-fit. He thought that a bridge should be made so that it would be possible for the patient to keep it clean and that it was the duty of the dentist to give the patient careful instruction how to do it.

DR. DAY wished to know if the essayist invested the post and cap to solder them. He could not see any advantage in putting the post in the buccal root of upper first bicuspids; in fact, a post in the lingual canal was in a better position to support a crown and often more easily inserted than in the buccal as suggested by the essayist.

DR. WEBSTER said that since the introduction of the Gilmore attachment many roots of teeth might be used as a support for a denture by grinding them off even with the gum and making a post and cap and upon this solder the attachment for the Gilmore. After the lingual root of an upper molar has lost its attachment and been removed and the remaining crown ground even with the gum an attachment is made. There was no advantage in retaining the crown of a tooth to support a clasp which only wears the tooth away; better cut the crown off and get all the advantage there is in the root for mastication and at the same time support a partial or entire denture.

Dr. Stewart thought that bands on crowned teeth caused more loss of teeth than was caused by split roots. He thought that one piece of partial or individually saddled teeth of a bridge exhibited would not be very clean in the ordinary mouth.

Dr. McDonagh believed that bands and improperly made bridges were the source of much of the neuritis, rheumatism, etc., patients suffer from. He said that a saddle fitting close to the gum causes the gums to hypertrophy and become an absorbing surface. From such large areas much absorption was seen to occur.

Dr. Capon complimented the essayist on his excellent address and thanked him for calling attention to Betts bands for taking impressions of ends of roots.

Dr. Willmott wanted to know how the essayist would keep the cast gold from fusing the thin pure gold swadged to fit the root end.

Dr. Goslee closing said that unless a dentist adhered closely to detail he could expect little real success. His main objects in his present methods were accuracy and comfort of the patient. Impression of root ends and swadging in the laboratory filled both requirements. The key pin suggested by Dr. Woods was a great advantage in some cases. The so-called self-cleansing bridge was uncomfortable to the patient and not self-cleansing. He said that if castings are made in a cold flask the pure gold would not melt. Dr. Hunter some time ago condemned American dentistry but it was not the good American dentists he condemned, but it was badly fitted banded crowns, poorly made saddle bridges and unhygienic dentures which he objected to. In closing he said there were short Goslee crowns which would fit any place where a porcelain ought to be used.

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HISTORICAL RECORDS IN DENTISTRY

By the past we can judge the future. But without the records of the past the future is often a sealed book. There is nothing upon which to make a judgment. It is firmly believed by dental historians that dentistry was first practised on this continent in the Province of Quebec. It is believed that the representatives of the French Crown sent to Canada, brought dentists with them, but no one up to the present has found any record of their presence in Canada. The record of a dentist's life in any community helps to make up the history of the people of that community. To know the attitude of mind of a number of dentists towards their life work, their neighbors and their surroundings is to know the relation dentistry bore to the affairs of life at the time. Because dentists in the past have not always recorded their methods and because those which have been recorded have not been read it has been possible in the past and is sometimes even now possible to sell methods of practise to dentists for larger sums of money. It is only but a few years since a man sold office rights in Toronto of how to prepare natural teeth for abutments for bridges without devitalization of the pulp, when the method was at that time fully described in "The American Text Book of Prosthetic Dentistry." The value of history has never been questioned, and yet the history of dentistry in Canada has not been recorded except in a few of the provinces. Some years ago the late W. George Beers recorded many of the facts concerning the early history of dentistry in Quebec. Dr. McAverney, of St. John, N.B., recorded the early history of dentistry in New Brunswick. At the union meeting of the Maritime Provinces in Moncton last July Dr. Bagnall wrote a very complete history of dentistry in P. E. Island. Of the other provinces there has been but little done. A few years ago the secretary of the Board of Directors of Ontario sent out circular letters to gather facts of the early history of dentistry in Ontario. There is really only one dentist in Ontario who could effectively record the history in Ontario. We believe Dr. J. B. Willmott could do this for dentistry as he has already done a thousand and one other things. The western provinces should get the early history of dentistry recorded before the possibility of getting the facts is gone.

LAVAL DEDICATED

Laval University Dental Department was officially opened and dedicated to the teaching of dentistry, in Montreal, October, 16th, 1913. It was a social and educational event of great interest to Montreal and the Province of Quebec. Among those who were present to show their good will and take part in the ceremonies were the Bishop of Montreal, the Superintendent of Education, Lieutenant-Governor Sir Francis Langelier, Premier Sir Lomer Gouin, the Mayor of Montreal, members and professors of sister universities in Montreal and Toronto. Dr. Kern, the official delegate of the French government, brought greetings and felicitations from his government and colleagues in France. Dr. Dubran, Dean of the Department, and Vice-Rector Roy welcomed the large gathering of friends and the delegates present.

The building was opened for inspection at seven o'clock and remained brilliantly lighted throughout the whole evening. The room in which the official ceremonies took place was not large enough to hold all the guests and friends. The corridors and waiting rooms served as resting places.

This is undoubtedly one of the finest and most complete buildings on this continent for teaching dentistry. The cost is in the neighborhood of $250,000. This gives a fair idea of the completeness of the plant when one knows that it is intended to accommodate two hundred students. The architecture is simple, substantial and pleasing. The interior layout is convenient and economical to run with good hall spaces and light, airy rooms. The main floor is high above the ground level, with an imposing entrance where the patients and staff are admitted. The students' entrance is from the north end, where they ascend a stair and leave their coats and hats and enter the lecture rooms. The laboratories and clinic rooms are on the main floor and every student and every patient must pass the main office both coming in and going out. In this way the clerk can keep a record of the attendance of both students and patients. This office is so located that it gives a commanding view of the main entrance, students' entrance, reception room, patients' waiting room, the prosthetic laboratory and the entrance to the surgical clinic. The office of the infirmary commands a view of the infirmary, the patients' waiting room, the senior and junior laboratories and the prosthetic infirmary. Nothing can occur on this floor which may not be seen by an officer of the college. The arrangement of this floor is especially good.

While the arrangement of the floor plan is all that could be desired, it is the magnificence of the equipment which demands attention. There is not a detail which has not had the most careful thought. The infirmary is equipped with oil pump chairs, electricity, water, compressed air, gas, a sterilizer that will sterilize, and hygienic drinking fountains.

The faculty room looks like a place where educated men could meet in comfort if not in luxury. There are three or four professors' rooms fitted with desks, chairs, couches and toilets. The minor surgical clinic room and the patients' rest rooms adjoin the rooms of the staff.

With such an equipment as this college has the staff should feel comfortable and be able to do its work with a minimum of nervous strain, and the student body should feel ever grateful for the geniuses who conceived it and carried it to completion.

DENTAL OFFICE FOR RENT.

Best location in the city over corner drug store, new district, northwest part of the city, all hardwood floors, front room especially designed for dental office and operating room, every convenience, hot water heating, six rooms and bath. Rent per month, $45.00. Phone, Reid, Druggist, day M. 6036, evenings Beach 842.

BLACK FOXES

Have you heard of the wonderful industry of raising black foxes in Prince Edward Island, Canada? Fortunes have been made, and are now being made, breeding black foxes in captivity. If any dentist would like information about this very interesting subject, write for my free booklet.

E. A. RANDALL, D.D.S., Truro, N.S., Canada.

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Original Communications

PERSONAL HYGIENE RELATING TO THE DENTIST

DR. GARRETT NEWKIRK, PASADENA, CAL.

Read before the Dental Society of Western Canada at Calgary, Alta., July, 1913.

It might be asked wherein hygiene for the dentist should differ in any wise from hygiene for anybody else? Are not the principles the same? Certainly there are. There is no other vocation like his. He is the only one whose work is performed day in and out, year after year, standing by a chair in a position that is inevitably more or less strained or distorted.

The surgeon stands by the operating table, but usually in a free position, for a short time only, and it may be with a number of assistants. The *position* of the dentist is unfavorable, first for free breathing. The shoulders are stooped, the spinal curves are abnormal, the muscles of the body from head to foot are exercised unevenly, unsymmetrically. Second, the work he has to perform is peculiarly exacting on brain and nerve. He must exercise not for a few moments only but often for hours at a stretch the finest control of instruments—not on inanimate, or anesthetized matter, but ever on the ragged edge of danger to some one's feeling and fear.

(Reference here made to Anelgesia.)

The dentist as a rule has *office hours too long.* He works by appointment, and is tempted to make too many for the day. Often the time allowed for a given operation is insufficient. He labors therefore under mental strain, and a sense of pressure to accomplish more than he ought within the period allowed. Seldom has he made allowance for the unexpected, the accidental. He is strained by responsibility, and tortured often by anxiety, till he is fully justified in longing for

"A lodge in some vast wilderness,
And boundless contiguity of shade."

For his work is all indoors. It is not relieved like that of the physician by going to and fro beneath the open sky.

Now, what should the dentist do to counteract as far as possible the adverse conditions? If we were to devote the whole of a three days' meeting to the discussion of this subject, we could not fully cover it. I have sometimes thought that if we would in our conventions take up only one or two broad questions, and consider them thoroughly from many points of theory and experience, we should arrive at greater good than we do by considering so many things hurriedly under programme pressure. So I can only give the briefest consideration of some of the phases of this question.

TIME.

It is not possible in any of these matters to lay down rules for all alike. But I will say that in my opinion the dentist should not work at the chair more than six hours per day—some may endure more, others ought to take less. We ought to consider, not merely what we may accomplish in the present year or the next ten. We should take account of the possibilities of our whole life. With this thought in mind, I will venture the statement, that any man shall accomplish more in his lifetime by working deliberately, unhurriedly, a limited number of hours per day than he can with overstrain of energy and time.

For several years I have given to our Senior Students in the College of Dentistry, University of Southern California, in connection with a course on Ethics and Hygiene, one or two lectures on what I style "The Three Cations." These are:

(1) Vocation.

One's regular employment, whereby he earns a living.

(2) Avocation.

Something aside from his vocation—something useful, interesting in accord with personal taste; educational in some sense, possibly profitable pecuniarily. It must constitute a diversion, a relief from routine, give physical and mental change.

In exceptional cases, the avocation may relate incidentally to the vocation, as for example when Dr. Black worked at the chair in Jacksonville, Ill., and studied bacteriology night and morning. When Dr. Johnson wrote his novel, "The Hermit of the Nonquon," he was engaged in an avocation pure and simple; editorship of the Review is an incomplete avocation, too near the daily grind, though he could not have one more useful, to *us*.

Everyone should have some avocation that will take a little, more of less, time, each day.

(3) Vacation.

A vacation to be real musi accord with the etymology of the word. It must be entirely aside from vocation, and avocation both. It involves a complete letting go. I can hardly give a better definition in few words, than this. The man lets go ("All holts loose," as we used to say) of the ordinary life, and becomes as nearly as he can, a *boy once more.* He may do this for a month or longer once during the year, or he may take a month, or less, twice a year, and he may take a miniature vacation every month or week. It is well indeed if he is convenient to a field of out door sport that he take a half day off regularly each week.

I have learned within the last five years that I can have complete forgetfulness and healthful change from my vocation, chasing a little white ball from hole to hole, eighteen times of an afternoon.

But no series of short vacations, weekly or monthly, can ever supplant the need of a longer one, or two. We need them all.

OUR FOOD HABITS.

Pick up whatever newspaper you will and glance at the patent medicine and quack advertisements, and you will always find, I think, most of them appear to people suffering from indigestion and kindred troubles flatulence, constipation, "liver complaint" and the like. On leaving the building just after telling this to the students one day, I bought a newspaper at the next crossing, and the first thing that met my eyes was this, in big type: "Past fifty?" "You need Cascarets." "What glasses are to weak eyes, Cascarets are to weak bowels." "Well." I said, "I'm past fifty, and I don't need 'em." I went on through the paper and found some ten or twelve advertisements referring to the alimentary tract.

This simply shows that the nostrum vendors understand where to find the weakest place in human armor.

It ought to be a simple matter, one would think, to avoid indigestion. It was Ruskin, I think, who said that he had little sympathy for anybody over forty years of age who complained of dyspepsia, for, said he, "It would seem that anyone with ordinary sense should have learned by that time what would agree with him and what would not."

WHAT TO EAT.

Following out the above suggestion we may say, therefore, that it is hard to make complete rules for any individual. One's habits should be largely the result of his own experience. The trouble is, however, that we are apt to *continue* the habits that we formed before we had experience; or that we have not known how to interpret our experiences. We go on in life doing things because we are accustomed to doing them, or we do things ourselves because other people do. Also when trouble comes to us we fail to perceive the relations of cause and effect—ascribing effects to supposed causes that are no causes at all, and trying out "remedies" not remedies in any true sense.

We should consider first, each for himself at least, the individual personality and temperament. Here is a man, we will say, who weighs two hundred and twenty-five pounds, a vigorous man, with a heredity close to the soil or the forge. Except when he is hungry, he is hardly ever conscious of his stomach. A man, such as I knew when I was a farmer's boy. He had never heard of Horace Fletcher, nor of any of his kin. At the end of a harvest dinner, when there lay before him on the cloth, six or eight corncobs, after he had put away a large amount of bread and butter, along with cabbage and potatoes, boiled beef, beans, pie or pudding, he would lean back with a sigh of great satisfaction and remark: "Hum, I feel as well satisfied after these few bites as if I'd had a full meal." And then his laugh gave evidence that his lung space had not been encroached upon.

Contrast with one of this type a man who weighs about half as much, thin, nervous, excitable, subject to all sorts of unexplainable reflexes, one of whom we say sometimes, "He is just a bundle of nerves." Shall we seat those two men at the same table and expect them to eat the same things and in similar amount? Shall the small man think he ought to do as the larger, or shall the host or hostess expect him so to do? As it would hardly be practicable for hosts to provide special courses for different types of guests, it should be appropriate, one would think, to allow each one the privilege of selection for himself both of kind and quantity. But how many guests are independent enough, or appetite denying, or know how to do this?

I know of one. Some one present may have seen Dr. Kellogg, of Battle Creek, founder, head and chief surgeon of the Sanitorium. Probably you know that he is a strict vegetarian. Every citizen of the United States and of Canada, I presume, has a legal right to adopt that theory of diet. Not only is he a vegetarian, with theories of mastication that antedate Fletcherism, but he is personally very abstemious. He claims to subsist, as I remember, on one meal a day; and to look at him you might well believe that one full meal would be quite sufficient.

I was present once at a banquet of the Chicago Medical Society, where he was the guest of honor. He sat through all the courses, chatting pleasantly with his neighbors, but eating, drinking nothing, that is my remembrance of him, although I would not swear that he did not take a bite of bread or a cracker along with a glass of cold water. After the dinner, he made the speech of the evening, and certainly there was no want of vigor in his brain, no lack of forceful speech, no unsteadiness of nerve. It is said that there are few men, if any, in the United States who do as much surgery in a day; he had been doing it a long time then. That was years ago, and I guess he is still at it. Although he looks as if the first west wind might blow him across Lake Huron, he still sticks to his job at Battle Creek. As to what can be done with wheat, on and by the strength of wheat, he is the best living advertisement. He ought to be held in high esteem in Western Canada. Possibly the people up here will one day contribute freely to his monument.

I once heard a paper read before the Illinois State Dental Society, by Dr. John R. Patrick, of Belleville, since deceased, which described in a semi-humorous way the various foods of different peoples, civilized and savage. Well, he made it quite evident, that almost anything imaginable of vegetable or animal diet could be used in any conceivable form, uncooked or cooked, and sustain life; not merely sustain life, but develop a splendid physique in the user, if he had grown accustomed to it. All that was necessary seemed to be that the food should contain simple elements, more or less in common with wheat and other grains, nuts, meat, fibre or fat.

I have been led to the conclusion from these and later observations, that, while some things are, of course, more easily digested than others, almost anything can be digested by the healthy person who is really in need of food, provided he eats not too much, and prepares it in his *mouth*, as he ought, *for his stomach*.

HOW TO EAT.

There is no need of discussing this question over much. You have had it given you freely in the journals during recent years. There is little that is new in Fletcher's theory of mastication, but he has put the old truths before us in such manner, by precept and example, as to make them take new hold. Horace Fletcher has made a distinct impression on the thought of his day. He is truly a teacher of men, and that means much. There was a great teacher, the greatest of all, who took old truths and made them new, some 1900 years ago, and by the impress of his personality, created a new era in the world. There is no vocation greater than that of the teacher. The great teacher is he who sows true seelthoughts, in men's minds; who makes people think vitally, intensely, so earnestly that they in turn become teachers of teachers. Whoever teaches in such manner is helping somewhat, I think, to establish the Kingdom of Heaven on earth.

Horace Fletcher, the teacher, has impressed many, and made them to impress others as to the importance of thorough and complete mastication. He has re-asserted the old truth effectually, in that he has made people actually *do* the things they *know* they ought to. That means progress.

People eat hastily, badly. Why? Many because they know no better. Some know better, but forget, because it is easily possible to eat without thinking about it at all. One great argument for the care of the deciduous teeth is, that if mastication causes pain the child will cut it short and "bolt" his food; and so he forms the *habit* of rapid eating.

The person who eats rapidly always eats more, usually much more, than he would if he ate slowly. Therefore, instead of a small or moderate amount of pabulum presented to the stomach, *well prepared*, we have an undue or large amount presented, ill prepared. Any stoker knows that if he puts into his grate enough of coal of proper size, he will produce more energy than he can with twice the quantity half consumed, besides the saving to his furnace and machinery. So this bad habit, however acquired, becomes a two-edged sword menacing to health.

It is the *mother* habit, too, of all the other bad habits that follow, poor digestion and mal-assimilation, overloaded, torpid intestines, sluggish liver and spleen, and congested kidneys, blood impurities, mental disquietude, and finally *one of the worst of habits*, that of taking *drugs* to relieve conditions all unnecessary, that should never have existed. I could not in one hour enumerate the evils that result from this one habit of non-mastication, along with *too much* food.

Some one has defined *dessert* as being some article of food taken after one has already had enough.

I venture the statement that desserts are usually quite harmless in themselves, that any one of them could be taken without harm, provided it were taken first, and then not followed by anything else. If dessert must follow, a very moderate amount certainly should precede.

In relation to the question *when* to eat, we might discuss when *not* to eat, and the *last*, going without one meal, or more, has its place in the hygienic economy.

DRINK.

In close relation, of course, to the food question is that of drink. With the hope that I shall not offend any one who may think differently, I think I have a right to say, I think I ought to say, that I am totally opposed to the use of alcoholic beverages in any form. I even object to the word *use* in connection with them, for in my opinion, they have none. I have been watching the world closely, for at least sixty years, and I have yet to see the first man who was benefited by alcoholic liquor; but I have seen thousands who were harmed, many ruined and brought to premature graves.

One of the dearest friends of my young manhood, one who fought through Gettysburg, and who had promise of going at least to Congress, or a Cabinet position, went to his grave, thirty-five years ago, a victim of alcohol. I had the sad duty of taking his body home to his mother, from the West to the East.

Of all men, it seems to me that the dentist should be free from the alcoholic habit, leaving out many other considerations, let me say that I have yet to see a drinker of alcohol, whose hand was quite steady at the age of fifty.

CLEANLINESS.

Cleanliness, we may say, is a relative term. Absolute cleanliness would be, I suppose, surgical cleanliness, difficult to attain for even a brief period under most favorable conditions. We can only hope at best for a near approach to the ideal; absolute cleanliness is impossible. We can never know, positively that our clothing, our persons, our belongings are free from matter that may be deleterious. Any professional man, physician or dentist, would be offended probably if he were accused of uncleanliness; and yet I buestion if any one of us is entirely spot-free. We honestly try, or we think we try, but do we actualize, or approximate the ideal?

To each class of senior students, at the College, I have suggested in recent years just one simple test. I have said: "How many of you think that you have clean scalps? I wish to suggest that to-morrow morning you shall secure a basin of very warm water, pour into this a teaspoonful of aqua ammonia to give it the 'feel' of alkalinity, wash your hair and scalp thoroughly in the solution, whiskers, too, if you have them, and give me a report at our next meeting." Up to this time, I have never found a student so bald and beardless or so clean beforehand that he would not confess himself surprised at the result. Try it whoever will, and if the water even looks clean after use, I will agree to give a chromo to the one making a sworn report to that effect.

Dr. Black once made a series of experiments with scrapings of finger nails, many fingers of many hands ,and he found pretty generally microbes of many sorts, some noxious, with people who thought themselves careful and cleanly. I can only skim this subject—give it just a sprinkle of my convictions.

I am convinced of several things: First, that no one can keep clean by use of cold water alone. I will suggest that if one will use hot water—yes, *hot*, no Laodacean temperature—after he had used cold, on scalp and face and hands and feet, he will make unflattering discoveries. So convinced have I become of this within the last three years, that I have made it my morning habit to take a quick complete bath in water as hot as may be borne, followed by a tepid or cold dash and vigorous rub.

At the same time I wash my mouth with hot water, in which is thrown a small amount of effervescing salt, Wyeth's Phosphate or Sal-Hepatica; as it gives at once a cleanly feeling to the mouth—why should it not to the stomach, so I send a cupful down to that.

I am not so dogmatic as to claim that every one should do as I do, but I will say this for myself, that contrary to predictions of doctors and others, I have never in my life previous been as free from so-called "colds," have never been so free from catarrh, indigestion and an asthmatic difficulty that I have inherited and have struggled against from boyhood. Of course, the rubbing is followed by a few minutes of exercises I shall hereafter describe. No matter what may be my feelings on arising, or lassitude, or aches or stiffness, I am sure to feel "like a new man," and be ready in half an hour for at least a moderate breakfast.

I am convinced, second, that no garment ought to touch one's skin two days in succession. In my experience, flannels have proven a delusion and a snare—linen unnecessary, cheap cotton mesh (in summer but the thinnest) quite sufficient.

Perhaps in Canada the rigorous winter might convince me differently. If compelled to flannel, however, I am sure I would wear the mesh underneath for cleanliness and comfort of the skin, changing every day.

I am convinced again, that we do not appreciate the value of water as we might, justly. We are mostly made of it. The X Ray goes readily through our tissues all excepting hair and bone, simply because of their fluidity. The skeleton of tissue is built for the use and circulation of water, and water carries everything we use for placement or replacement.

We should remember that real cleanliness is internal as well as external, that it applies to the mucous membrane throughout as well as to the skin. We wash our blood or flush the kidneys, bowels, lungs, all with water. It is literally squeezed through us in all directions. It is the one drink—all drinks were valueless without it, and the additions we make are chiefly harmful.

BODILY EXERCISE.

Thousands of papers, hundreds of books, probably have been written on Exercise, and questions relating thereto. A great deal of machinery has been invented and employed to assist in "Physical Development," and "Athletics." And I am reminded here of a high-sounding name that appealed to the imagination of a young lady—she said to her father: "Dear Daddy, I am just dead in love with Calisthenics." "Oh, my daughter," he replied, "I suppose I shall have to give you my blessing, but I did hope you would be satisfied to marry one of our own countrymen." He thought Calisthenics must be some "foreign fellow."

Now it seems to me that these questions of exercise and development have been voluminously befogged. We have a wonderful undergrowth of fads and isms and pathies here as in medicine, which hinder approach to the tall straight trees of principle. It has taken me a good many years to search out what seems to me a practical analysis of the simple truth.

THE PRACTICAL QUESTION.

Athletic rooms and fields, gymnasia, expensive apparatus, games and clubs; these are all well enough for those favorably situated, and who may have the leisure and the money to enjoy them. Professional trainers may be of service to those who would strive for honors afield. The Masseur, the Swedish Movement expert, or the Osteopath, may be of service to some in the restoration of powers they never should have lost. But what we wish to learn is this: *What can anyone do for himself, anywhere, any when,* without extraneous help, to preserve the integrity and healthful action, the normal usefulness of his own body?

I almost blush to start my argument with a statement so old, so trite, that it seems a mere platitude; that growth and development depend upon *use*. Everybody knows that. Everyone is aware of the fact that the unused organ tends to weaken and shrink; that power, to be increased or even retained, must be exercised. We have heard all our lives the illustration of the blacksmith's arm, and the spindling legs of the boy who never runs. Intelligent people know in a general way the law of development and growth. Most people know that they ought to be more symmetrically developed than they are. They know that as children, (if they had a fair chance) they possessed activities and powers that in later years they have lost—at least in part.

They are apt to jump at the easy and self-satisfying conclusion—that the change is inevitable, that it is part of the order of nature, that they must of necessity lose power in a number of directions, and when they suffer many aches and pains along with those losses, they ascribe these to all sorts of causes, except the real ones; and seek all kinds of remedies except those that involve radical *self-reformation*.

Now I shall throw away all special rules and technicalities and high phrases, and follow the example of the great Teacher of whom it is told that: "*He called a little child to him and set him in the midst of them, and said, 'Verily I say unto you, except ye be converted and become as little children, ye shall not enter into the Kingdom of Heaven.'* "

Now, I say to you, brethren, that these words are as true with reference to physical as they are to moral or religious life.

The law of life in the child *is* that he seeks symmetrical development. He may not have a symmetrical or well rounded inheritance, but he instinctively seeks and strives for symmetrical action. Unconscious activity begins before he is born. Growth and activity act and react upon each other from the start. And so it is throughout life. The law of the child continues to be the law of the man. Increased growth (true cell growth, I mean), means more power, more action; increased normal healthy action means *growth*. In the freedom of his new environment the young child continues the movements begun in utero. It is interesting to watch the growth of his powers, added force, increased co-ordination—for there is a harmonious co-partnership of brain and spinal cord and ganglia, and all cell life, to one great end—symmetrical, complete development.

A little later, place him on the floor and watch his movements. Every fibre of his being seems electrified. Every nerve and muscle and ligament, *even his bones*, find expression. Every part is supple, every joint is lubricated. There is not a particle of rust in his machinery. After striking out and pulling hair, and kicking stomachs for a year or so with perfect physical joy, he essays to use his legs and feet for their intended purpose—to carry his body about. His limbs may be crooked, but fully nourished they will straighten, and the soft feet toughen. Every tendon, every muscle of his trunk and upper limbs assist—and *grow*. He fulfills the definition of Demosthenes as to what makes the orator—First, *Action;* Second, *Action;* Third, *Action*. After a period of crawling and falling and bumping and tumbling with many ventures and experiments in this new world of locomotion, co-ordinate powers have increased till he can run. *Yes, glory be*, he can run, and jump and climb and, standing on one foot, can spin his body about. And oh! the glory of life. If he's normal, he is noisy, he must be—his vocal powers demand it, and somewhere, in or out of doors, they must be satisfied.

As time goes by the child engages in various games—a very different but of all nature's plan, for one great end, again I say, symmatrical development. The *games* of childhood and youth are not of accident or whim or folly, they represent the very philosophy—the divine intention of physical development. Even among the lower animals, the fact and principle of play is evident.

In temperate zones the children have their games for every season, each comes on with clock-like regularity, and each contributes something different from the others not only to physical growth, but mental and moral education. *Character* is built upon the playground quite as much as in the school. This, however, is aside from the present discussion and might well be the subject of a special paper.

If the child is permitted to lead a natural life, his play activities continue on through youth to maturity. But too often the ideas and conditions of our civilization interfere. The physical life is sacrificed in great measure in order to fit the child better, as it is supposed, for some special line of activity—the convolutions of his brain are stimulated to the utmost by modern curricula of study, unduly complex, and exhaustive super-refinement is produced at the expense of real power. It is sought to force development quickly, so that the individual shall have full maturity at twenty which would be better deferred till twenty-five or thirty. In the athletic field instead of *all* taking part for the sake of development, which should be the true end of sports, those who need it most are forced to be spectators only of professional play, which benefits only the few. But when the youth has grown to his so-called maturity and enters upon some vocation, what then is likely to become the habit of his physical life?

If he is so fortunate as to be a farmer, or other out-door laborer, he will continue of necessity to take exercise more or less all around and healthful. Otherwise, in almost any commercial or clerical, or professional pursuit he begins at once to form the habit of *partial, incomplete exercise.* Unless he is an exceptional person, having some out-of-door avocation to offset his *vocation*, or is devoted to some form of athletics, he does not sustain the development he has received as child and youth.

As concrete examples are always more impressive than general statements, however true, I will give you here an outline of the experience of a long time friend of mine who recently passed on.

As a youth of 17 he was able to enlist as a soldier in the Civil War, carrying a knapsack and musket. He had a fine symmetrical development that seldom knew an ache or pain. Leaving the army before he was twenty he became a student of law and literature, studying day and night, not realizing the necessity of regular, systematic exercise. By lack of this, and irregular hours of sleep, he soon contracted nervous asthma, along with indigestion, and the concomitant evils of constipation, hepatic sluggishness and mal-assimilation. Naturally there followed what the doctors now call auto-intoxication or faulty metabolism.

Of course, he followed rules of diet, and he depended on strong coffee to whip his brain and nerves in the intervals between his periodical breakdowns. These occurred several times a year, involving much of suffering, loss of time, sacrifice of cash, and under many doctors he became the subject of endless experimentation with drugs. There was hardly an advertised "asthma cure" that he did not try at one time or other during forty years, and out of those forty years, surely he lost five by ill health, and lost power from them all. He died at 69. His father had lived to 93, well to the last.

My friend's vocation was that of editor and writer, and it had *no* time limit, day, night or Sabbath. He had no avocation, unless it were more writing and editing, with reading of literature. He took no *vacations*, except those imposed by ill health;—when he was compelled to halt from sheer inability to go on, and then very soon this vacation, too, was intermixed with work. Forty years, day and night, bending over desk and table! What became of all the muscles once so supple in his childhood? What happened to the ligaments of his spine? What *must* occur to organs little used? Diminution, loss of fibre, lessened circulation, smaller blood-vessels, shortened, stiffened ligaments, weakened nerves, local inertia. *The part but little used will* soon object to any use whatever. Anemic nerves become irritable—pain comes with movement that was formerly a joy. The parts "resist" when normal action is demanded. There is said to be "neuritis" or "rheumatism" or both. Not knowing what disuse has been the cause; that a *return to use* (slowly it may be, but regularly, persistently) is the only remedy in reason, the individual yields—yields his will of *control* to the abnormal demands of his members. They were once his glad and willing servants, now they are cruel masters, he their slave.

Blind to the truth of his own case he resorts to drugs. These falsify to faith and hope, breed melancholy and despair. Not knowing where his trump cards lie, he plays a losing game.

Perhaps he goes to the Osteopath or Swedish Movement artist. And these may help—yes, up to a certain point. They do for the man what he should have done for himself, what he really did for himself as a child: what he may do for himself again if he but understands, and *will* act intelligently. He must himself *resist* and overcome the resistance of his members; the Osteopath athletic, the Swedish artist, force and compel movement, do they not? Do they cease for his crying? Nay. Do they hurt him? Yea; and he is benefited. But they cannot do more than start him on the road. He must do his own continuing. Did they *force* movement? He must force it. Did they hurt the resisting parts? He must hurt them, too, till they give up and act painlessly as they did in childhood. They have been a long time deteriorating with non-use; it will take some time to restore them—by use, persistent, regular, *increasing exercise.* Now I say, because *I know* that whatever tre professional manipulator may do for the man he can do the same things for himself. He may if he will, and goes about it intelligently. And he can do for himself what they cannot do. I know, because I have been "through the mill" myself.

There is a great difference in doing things for yourself, and having them done for you—a physical difference; a moral difference; a psychological difference. To do a thing for himself, especially if it seems difficult, makes a man hopeful, self-reliant; it gives him courage and independence with new will power.

It is weakening, it is discouraging. It saps the very fibre of an individual to grow dependent on extraneous help, whether of doctors or drugs or manipulators—any sort of a crutch. And literally there may have been people who continued to use crutches long after necessity had passed or have continued to ride in wheel chairs by force of habit.

There is such a thing as a hygienic, or an unhygienic *mental* attitude. I once heard a mission preacher say to his flock: "If you were to go through all the graveyards in the country, and read every inscription, there's one thing you'd never find, 'Died of too much encouragement,' " and I will add another: a good many people have died of pessimism and despondency; but none ever of optimism. It is the best vaccine I know of, and if it were possible its use should be compulsory.

Look through the pages of history, and find if you can where any advancement, any reform, any great achievement for the benefit of the race was ever made under the leadership of a pessimist. Napoleon was a cynic, but never a pessimist, at least not till after Waterloo.

A PERSONAL EXPERIENCE.

I said that I had been "through the mill;" a few years ago I had a break-down, culmination as I know now of long continued violation of hygienic laws.

The doctors diagnosed my case. I had "rheumatism," "vocational neuritis," occasioned by "over work" at the chair. I had also, "emphysema" of the lungs, from which I could not expect ever to recover fully; I had, also, asthma and dilatation of the heart. I had reason to suppose, therefore, that I wasn't very well. I was told that for the rest of my life I should take no active exercise. I should not go above an altitude of two thousand feet. The mountains were to be forever barred from my enjoyment, except as I looked upon them from the valley. I was advised by several that I should go to a hospital, and remain in bed some weeks, with the hope that by leading a very quiet life I might prolong my days on earth and subtract a few years from heaven, which seemed hardly worth while.

Being of a skeptical turn, with some knowledge of physiology, and having experienced the methods of various osteopaths, chiropaths and "Swedish movement" devotees, I proceeded to do some thinking for myself.

I said to myself: "This is not a necessary or natural condition. It is bad enough, that's true. You have an asthmatic cough, but it is probably reflex. It depends partly on disorder of the digestive tract. Start on buttermilk and follow with a simple diet. It depends partly on the nerves. You are thinking too much about your own symptoms. Ignore them. Use your will. You have too much fat, and not enough muscle. Reduce the one and strengthen the other. The heart muscle is weak along with the other muscles. No part can be restored to strength by non-use."

Following the "rest cure" the muscles of the trunk, the neck and upper extremities had grown more and more flabby. The deltoids were so weak and soft I could not raise my hands above my ears, at least not without acute pain. I could not button my collar. I could not trust my arms at the wheel of my "machine"; nor could I turn my head upon my rebellious neck to see if another was chasing me.

While at a health resort, I met a man who was not there for *his health;* but on business. He told me that he had been in a bad fix at one time, and had cured himself by calisthenic exercises taken night and morning in his room. Putting this and that together, I outlined a system for myself. It was very simple. I determined to put myself through the motions of a child or a boy at play, or a man at work with an axe or flail or a scythe.

At first I tried dumb bells, but I soon discarded them. I had read that Jeffries took such exercise regularly as part of his training and used no accessories except a "punching bag" (Johnson proved too tough a bag for him)—I find the dumb bells good for holding a door open.

I went at it and stuck to it. Have stayed right with myself on this line for two years. I went up almost immediately to Lake Tahoe—6,000 feet altitude. I rowed and I fished and I walked; I climbed slowly at first, but a little each day.

And along with these I kept up the calisthenics—just a few times morning and night.

Did the movements hurt? Yes. I knew they would—that I had no reason to expect they wouldn't—didn't deserve anything better. I made it a rule, in fact, which I still follow. The thing that hurts, *do*—the hurt is a sure indication as to where resistance lies. It is simply a *fight*, and I am bound to win.

The muscles and ligaments grow more and more strong and supple. They are visibly much larger, too, as I could show you—I can make any movement now—only a few hurt, a little—yet. I can hold the wheel, easily, and I can turn my head either way round, and see the same object directly behind me.

I think I have proved in my own experience the truth of my assertion—that any one may if he will help himself, any where, any when, without extraneous help—and I am not saying that extraneous help is not valuable in certain conditions, for a time; but woe to him who depends upon it to the neglect of his own resources.

How to Breathe as an Exercise.

Deep breathing is neglected by most professional men No day should be without it If it is attempted as an exercise simply, the mode is not as it seems to me well understood If a right mthod was ever formulated it has not been my good fortune to read it I think it consists, not in trying to inflate or nearly empty the lungs by one continuous effort, but by a series.

Let's learn of the child again. He is, we will say, walking up hill. Ordinarily expiration and inspiration practically balance each other—but now there is a difference. As he proceeds, inspiration exceeds expiration with each breath, until after many breaths his chest is expanded at the top of the hill more than at the start, hence more oxygen. Now he turns and walks down—instantly again with the relax of nature's call for more blood expiration is slightly in excess of inspiration—*with each breath*, until at the bottom the equilibrium is soon restored.

Now, is it not reasonable that the conscious exercise we attempt should follow the same procedure?

I will illustrate showing how one can reduce the residual air in his lungs to the lowest point, gradually, by successive breathings emphasizing *expiration;* and then inflate *gradually*. This appears to me to be the rational method, and safer, especially with those whose lungs may not be entirely sound—or with asthmatic bronchii. (Applause).

Dr. Newkirk here gave in closing illustrations of simple but comprehensive calisthenic exercises.

DISCUSSION.

Dr. K. C. Campbell: Mr. President and Gentlemen,— The Committee did me great honor in asking me to discuss this most important subject. Outside of the technical side of dentistry, I think you will admit that it is the most important phase of dentistry—the keeping of oneself in good health. I was very glad to see the very broad scope of the paper. It is an admirable paper from every point of view, more especially since Dr. Newkirk has demonstrated to us just recently the theoretical part of it. You all know and recognize that dentistry is to-day very much easier than it was a few years ago, with the advent of the gold inlay and the new appliances that have come out from time to time. We do not have the same nervous strain that the older dentists did, say ten or fifteen years ago, and it no doubt will become easier yet, but even at best, it will always be to a certain extent a nervous strain.

In regard to office hours, Dr. Newkirk made a strong plea for the six hour day, which is no doubt admirable. I myself work seven hours, but I often think I would like to bring it down to six. Speaking of Saturday afternoons, for eight years I have not worked Saturday afternoons, and I never hope to again, but it is only a matter of habit. I never think of working on Saturday afternoon any more than I do on Sunday. If I started in taking all day Saturday, I am sure it would soon come the same way. I would appreciate it, and it would become a matter of habit. So with all these good and bad habits connected with our practice, when we once get into a line of action, whether it is on the wrong road or the right road, it is a matter of habit, and it is a matter of course. It is a major operation to get started from the wrong way to the right way, but it can be done. There is one phase of the subject that Dr. Newkirk has not touched upon, and that is sleeping out of doors. I think it is absolutely necessary that we should sleep out of doors all the year round if we can, but if not in this cold climate 7 or 8 months of the year. I do it myself for 8 months of the year, and when it gets to ten or twelve below zero it is too cold for comfort. but it is a fine thing. To hold oneself in hand, and to keep an even temperature under very trying circumstances, it is most necessary to keep one's body in condition, and we have trying circumstances to meet every day, consequently we should try to get into good habits and exercises.

Speaking of the drug habit, I was on a long canoe trip a year ago, and we had a friend with us, one of the party, who had got into the drug habit. He was a man of very fine physique, and good healthy appearance, and I am sure that he did not want it any more than I did. It was not exactly dope, but he had different kinds of purgatives and things that he used to take, and when we left our destination on our return, we had got about two miles from the wharf, coming up the river, and he had forgotten these drugs and left them on the table. He had to go and get them as he was coming to meet us at breakfast. He had to walk on that occasion, at least six miles, and he didn't need those drugs any more than any other man; it was just a matter of habit with him, he had to have them. The diet of the old Hudson's Bay servants and the French voyagours, who used to do the canoe work for the Hudson's Bay Company, was a daily ration of fresh meat, as much as eleven pounds a day, which to us seems an extravagant amount. These men slaved probably from early morning till late at night, and they could stand it, but how different that is from men who are living indoors. He has to eat very moderately, and as Dr. Newkirk says, all dentists eat too much. If they would eat less, and chew their food better, they would be in better health. In the matter of drink, I am sure no one will doubt the statements of Dr. Newkirk in regard to the use of alcoholic beverages. With regard to tobacco, I think it is up to every dentist to discard the use of tobacco until he is out of his office. Apart from the smell which always hangs around after cigars or pipes, there is a tendency to make a man nervous, but I think after hours a little smoking will not do a man much harm, although the time should be limited. In regard to the calisthenic exercises, it is necessary to take these exercises out of doors. I know of men who have gone to gymnasiums and Y.M.C.A.'s, and a good number of them have been in the same room playing baseball. That in itself is all right, but they are in an atmosphere which is not pure, and which is laden with germs. I think a man can get exercise out of doors all the year round in this country, providing the body is normally developed. Even those exercises, though, I think, should if at all possible be taken out on the balcony, or out of doors, in a back yard somewhere, instead of in a room. Dr. Newkirk did not mention the important side of mental development which might have been touched on, because no doubt that is one part of our being, the same as the physical and the moral. We naturally want to have our profession better thought of. There is room for improvement, and I consider that if we will only get out and take good healthful exercises in the fresh air, that no doubt but that it will be a great gain to each one of us personally, and no one will doubt the statement that it will make for better citizenship. (Applause).

DR. THORNTON: There is an old adage that the proof of the pudding is in the eating, and we have had a chance to see the pudding and to eat it this afternoon. It has been to me a matter of very great wonder to see Dr. Newkirk stripped to the waist, and the object in any such case is not simply to produce muscle, but it is the more perfect enlargement of life, and there is a tendency in our work to make us go home with a grouch. Dr. Campbell said that if a man would have a clean mind and a contented and placid mind, at peace with all the world, then it is necessary that he should have a well developed and well nourished body. I wonder if the reverse of that is not true also. If a man is to have a well-nourished body and to be physically fit, is it not equally essential that he should be well poised mentally, and at peace with all the world. I know if I go home to dinner, no matter how well I feel, if something happens during the meal to upset me, and make me feel annoyed, for sometimes I do get that way, immediately I have an attack of indigestion, and all the world looks blue. While I cannot claim to be as old as Dr. Newkirk, I am beginning to realize that there is not any time in life to waste by ill temper and ill words, and unkind thoughts in the home or in any other place. At peace with all the world is the only thing worth living for, and it is hard for dentists to do that. I practised for some years in a north light, and I always felt ugly with myself and every one else. For a good many years now I have practiced with a south light, where the sun could get at me. While it was hard even for my own wife to live with me years ago, any one could live with me now. I take a little exercise; I am very fond of the water, and now that I have an opportunity at the present time of living in the Y.M.C.A. at Montreal, with a fine swimming pool, I take a swim every morning. This is of course, easier for some men to do than for others, because it is born in some men to be supple, and to be fond of that kind of difficult exercise, while other men have to force themselves to it. Dr. Newkirk spoke about living without whiskey and tobacco; I have not always been a total abstainer, but I am wise enough to know that I am one of the men who should never touch it. One glass of beer would intoxicate me, as it has many times. I used to smoke a little when I was on the prairies, but I didn't like it, so there was no virtue in my doing without it. I am convinced, as Dr. Newkirk is, that it injures people. I remember when I was taking lectures under Dr. Teskey, a sentence fell from his lips which I have remembered ever since. It was on the question of what constituted an anaesthetic. He said: "Don't believe a man if he denies taking drugs;" he said "The habitual use of any narcotic lowers a man's moral sensibilities." I believe a man is better without the use of narcotics of any kind. I had a brother who was in business in Portage la Prairie a year ago, and he died last year in Winnipeg, from a tobacco heart. He was told years ago that he could not go on at the rate he was going, but there are few men who have the will power to stop. I met a very delightful man coming out here. He was the editor of a newspaper in St. Mary's, he said. "I realized I was using too much tobacco, and I made up my mind that I would quit—that I would taper off, and use less. I found I could not taper off, so I quit altogether." He said, "after two or three days I thought that it would get better, but it did not. However I stayed with it. I was in Montreal after three years, and I thought I would go and have a smoke, but I didn't. I had to quit." I realize that it is a great blessing to quit, but the difficulty is that there are so few men in the world to-day who are capable of consistent action. You take exercise to-day, then you go without it for a week, or cut it out altogether. It is the man who is capable of consistent effort who wins out in the end. It is after you get old and rheumatic that you want to get back and become the child again. I used to be something of an acrobat when a boy. It was no difficulty for me to bend. I could kick as high as my head yet. It was no difficulty for me as a boy to bend backwards and pick up a handkerchief with my teeth, but I was never a strong man. I have a brother here at Red Deer who could not bend over and touch his knees, much less his toes. It was natural for me, yet he was big and strong and healthy, and I was a skinny one. The old men get wise after a time. Young men conserve and preserve your health, if you want to be wise and happy. The pursuit of happiness is the great aim of life, and the man who gets the most happiness out of life is the man we should all strive to imitate.

I have enjoyed meeting Dr. Newkirk. He is an optimist, and a man who laughs and the world laughs with him. I had a boy at school a few days ago, who was going around with a grouch, and I put this up on the blackboard, "Laugh and your grub tastes better, grouch and it gives you a pain." (Applause.)

Dr. Clint: I feel like a boy this afternoon somehow, and yet it is a long time since I was a boy. It is easy to stand up before you, gentlemen, this afternoon, after hearing a paper such as has just been read. I was fearful a few days ago, when some person told me that Dr. Campbell was not going to be present to open the discussion on this paper, and I was requested to say something on it, and I refused to do so, but really, gentlemen, it is a pleasure to discuss it when you are under the inspiration of the paper that has been read before you. On one occasion a man that has made a great mark in the world as an actor-tragedian, Garrick, was questioned by an Anglican bishop, and his question was a very profound one. He told him about the line of life that he was engaged in, proclaiming the Gospel of Christ to the world, and then he told him that when he got up in the pulpit and told the story of the Cross and the Redemption, people would look on and listen with apparent attention, but unmoved. He said, "now I go to where you are holding forth over there in the theatre, and you tell a story of an imaginary person who never existed, except in the mind of the author of the play, and they listen to you and they become melted to tears. How is it?" he said, "that I telling this story of such vital importance that people listen to me and yet are unmoved, while you tell that which every one knows to be fiction, and yet they are moved. How is it?" he said, "Tell me, will you?" After a thought, Garrick said, "Your Lordship, the explanation is, and the only explanation that I can think of, is that you tell truth as if it was fiction, and I tell fiction as if it were truth."

We are greatly indebted, gentlemen, I think myself extremely so, to Dr. Newkirk for his enthusiastic paper of this afternoon, not only the paper, but the man is enthusiastic, and full of spirit. I feel as if I am going back to Winnipeg, and I expect that the product of this Convention is going to bubble up in my life for the next year, and I hope if I am spared till the next Annual Meeting that I will get another inspiration, and go on and on and on. I don't know how long I am needed here, but I want to be effective while I am here. (Applause.)

Dr. Newkirk: Friends, I certainly appreciate the kind things you have said, and possibly thought—those of you who have not said anything. I will just say this that in presenting the thing as I do, in the first place I believe in it intensely. I believe in the truth, what I am saying. I believe in the next place, that it is vital to the interests of every one who listens to me, especially the young man who has his life before him. I want him to escape, if possible, some of the pitfalls that I have fallen into. I feel intensely and directly the truth, and that is why I want to apply it to other people's lives and make them the better for it, especially among my own professional brethren, and of course along with them their families, and their wives and children, their mothers-in-law and their patients. If you keep well you will get along better with your patients, and have more happiness in your practice and do better work. I did intend, this morning to touch on that question of outdoor sleeping. I sleep outdoors myself the year around, with a screen porch, and I miss it when I get into a room. Ventilation, gentlemen, is simply an attempt to bring outdoor air indoors, but you can never get quite the quality. It is never quite as good. Ventilation is just an attempt to do it, and that is all.

Smoking, I do not believe any dentist ought to smoke when he is in practice, unless it is in the evening, as has been suggested, and even then it is a question. I formed the habit many years ago, and do sometimes smoke a cigar, as you will all know from last night. I do not think though a dentist ought to have the odour of tobacco upon him when he is in practice.

Dr. Campbell's suggestion about taking the exercises out of doors is good, if you can do it. You can take them indoors, though. It is better to take them without anything on you, and when you are in a city with neighbors, they are not always as appreciative as you people are here to-day. You, gentlemen, understood the situation, and it was all right. I think my remarks on optimism rather tended in the direction of Dr. Thornton's remarks on the blues. The optimist is the man who looks on the hopeful and bright side of things. He believes in things, and is full of confidence in the future. He has confidence in his fellows, and in himself, and confidence in the Lord over all, which is the principal thing. If you believe there is a power over all, working things out for good, and you are part of his plan, you are all right, and you can go ahead cheerfully and with confidence, whatever happens.

North and South Light: In our own country we have so much sunshine, that I like the North light, but if I were in a country where there is a great deal of cloudy weather, for instance in Chicago, where I practiced for seventeen years, possibly a South light might be more comforting. I have a North light, and I have good health. It does not give me the blues—nothing gives me the blues, except these confounded financial balances. The question of whether I am going to be able to collect enough at the end of each month to pay my bills. That's the only thing that bothers me in the world, and I guess it comes from the illustrious Mr. Micawber, who said that so many shillings and pence this way was happiness, and the other way was misery. The difficulty is to see close enough to that balance to have it on the right side. That is a trifle, though, as well, and I don't mind that very much especially when I am with friends. (Applause.)

CROWN AND BRIDGE WORK, WISE AND OTHERWISE

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Read before the Dental Society of Western Canada at Calgary, Alta., July, 1913.

At gatherings such as this, when a man is asked to read a paper, or give a clinic, two thoughts take possession of his mind. The first is, or should be, what can I read or do that will be of interest, and help those who are giving their time to attend the meeting, to give their patients better service, make their work easier, give the busy practitioner a consciousness that he is doing what is best in his operations, and, incidentally, help his finances—never at any time too large.

The second thought, apparently, often is what can the essayist do that will create the impression that he is a pretty big man, out of the ordinary, and give, or leave the impression that his operations are all of a high order, always successful, that he overcomes the difficulties, and, professionally speaking, is now on easy street. Sometimes it might appear that the second thought overshadows the first and is the more important of the two. But to set your minds at rest and to establish a common standing ground, let me assure you that the essayist on this occasion knows all the difficulties, has had all the failures, has experienced all the humiliations and suffered all the pangs of conscience that fall to the lot of the man who does crown and bridge work, and are inseparably associated with this particular part of our daily tasks.

Do not understand me to say that all crowns and bridges are failures, or that humiliation, or the sting of conscience always gnaw at a man's vitals after putting on a crown or inserting a bridge. No, for in many cases such work is indicated, and if well and wisely done will be a source of satisfaction to the patient, and both pride and satisfaction to the operator. But, much of such work, as seen in the mouths of many patients, is clearly contraindicated, and nothing but disappointment can come to the patient, and humiliation and loss of prestige to the unfortunate and often unscrupulous operator. In other words, some of it is wise and some is otherwise.

Let us deal first with the adaptation of single crowns, e.g., an upper incisor with a good root. The simplest form of crown that could be adapted would be a ready-to-wear crown, Logan, Davis, Twentieth Century, or any crown of the type of these. There are many features possessed by such crowns that render them peculiarly valuable. They are easily obtained and easily adapted. The porcelain in most of them is of good quality, and they can be obtained in such a variety of shades that the remaining natural teeth may be very closely simulated.

But they have one disadvantage that puts them outside the field of "permanent operations." It is almost, if not altogether impossible, to obtain a crown, the periphery of which corresponds with the periphery of the root to which it is to be adapted. But by the exercise of great care in making the joint, and by the patient persistent and conscientious use of articularing paper, an operation may be performed with a ready-to-wear crown that from many standpoints will be highly satisfactory.

To crowns with platinum dowels, porcelain body was formerly added, producing continuity of outline between the natural root and the porcelain crown. But this called for manipulative ability of a high order, and was not generally practised by the average man.

The casting process helped out here as it has helped out in many phases of our daily operations. But the casting of gold directly against a body of porcelain has not been at all universally successful. The gold *will* shrink, producing a misfit, and the porcelain *will* check, rendering the operation comparatively useless. Ready-to-wear crowns with base metal dowels are totally unfit to be used with cast gold. The reason is obvious. The heat necessary to melt the gold is more than sufficient to oxidize the surface of the dowels. The consequence is that union between the gold and the dowel rarely takes place, and if by chance it does take place a combination or alloy is formed which is always exceedingly friable, and consequently easily broken.

Without going into wearisome detail and over ground that has been covered many times, let it be said that two methods may be employed for obtaining accurate adaptation to the root ends and continuity of outline between the root and the porcelain crown. Cast gold may be applied directly to root and porcelain without any attempt to adapt a gold or platinum plate to either. That is, a dowel is fitted to the enlarged root canal, the crown is ground to fit on the labial surface, a V-shaped space is obtained by grinding on the lingual surface and wax is used to complete the union between root and porcelain. The porcelain, after the wax is reproduced in gold, is cemented to the cast gold base.

This plan possesses the elements of rapidity and ease. But for these you invariably sacrifice accuracy of adaptation to both root end and porcelain. Such procedure is not wise, it is otherwise.

A better plan is to solder a coping of pure gold or platinum to the dowel and adapt this to the root end, and then cast to this metallic coping. The result will be a much closer adaptation to the root end—the really vital point. The gold coping controls the shrinkage of the cast gold.

At the present time, as I see matters, the wisest course to follow in making an anterior crown is this: (1) Prepare the root end as you may desire; (2) enlarge the canal to receive the dowel; (3) solder a coping of pure gold or platinum to the dowel and adapt this to the root end; (4) obtain or prepare a porcelain crown that will fit the root at the labial side leaving a V-shaped space on the lingual side; (5) fit a dowel to the hole in the porcelain and to this solder a piece of pure gold or platinum and adapt this coping to the porcelain; (6) wax the porcelain coping and root coping properly to place; (7) remove the porcelain, invest the metallic parts; boil or burn out the wax and fill between the copings with solder; (8) cement the porcelain to place.

I know of no crown possessing so many advantages and so easily and quickly made. For crowns of this type the Goslee crowns are peculiarly suitable. They require no grinding to obtain the lingual V-shaped space, and in case of fracture the base of the new crown will fit the metallic seat without additional preparation.

A splendid crown easily and quickly made, without either soldering or casting in metal between the porcelain and the coping may frequently be made for any of the ten anterior teeth in the following manner: The root of the teeth is prepared with a slightly convex surface, carrying the preparation well up under the free margin of the gum on the labial side. A dowel is then fitted to the enlarged root canal and to this a coping of pure gold or platinum is soldered and adapted to the root end. The dowel is left protruding incisally sufficient to form the pin that enters the porcelain, and to this the porcelain crown is afterwards cemented. An impression is then taken and the model put on the articulator. A ready-to-wear crown, suitable for the case is then chosen and ground to fit somewhat accurately the metal coping. Perfect accuracy of adaptation between porcelain and coping is then obtained by taking small squares of moss fibre gold, making in the centre of the square a small opening, slipping this gold over the exposed end of the dowel, and then pressing the porcelain over the exposed end of the dowel and then pressing the porcelain tooth to place on the model to condense the moss fibre gold.

While this plan is not universally applicable, it may be frequently used where the exposed end of the dowel will give perfect alignment of the porcelain crown with the remaining teeth, and where the base of the porcelain is at least as large or slightly larger than the coping.

I will not dwell on the fact that some dentists still persist in putting gold crowns on cuspids and incisors. The most caustic criticism which has ever been passed on such so-called modern dentistry was that which came from the pen of a well known writer on Canadian themes, Mr. Robert W. Service, in his recent publication, "The Rhymes of a Rolling Stone":

So far as we can see at the present time shell crowns for molars and bicuspids must always be a part of the routine of the daily life of the dentist. How shall such crowns be made? Shall we make sectional or seamless crowns? If we adopt a seamless method, what system or method is universally applicable? Two principles only are involved in the making of a seamless gold crown. We must either swage over a metallic tooth form or into a metallic tooth form. What are the advantages or disadvantages of each?

If you swage over a tooth form you must make allowance for the thickness of the gold, both in the periphery, or measure round about and on the occlusal end. The gold tooth will be twice the thickness of the gold, larger round about than the tooth form over which it is swaged. It will be the thickness of the gold longer from cervix to occlusal surface. To make provision for this increase in size the tooth form must be reduced, and immediately an element of uncertainty is introduced. Besides, any tooth form over which a gold tooth is swaged must have its sides perfectly parallel or the gold tooth cannot be removed unless a fusible metal tooth form is used, which may be boiled out after the swaging is finished. But such a tooth form (a bell-shaped, fusible metal form) has this disadvantage, that after the swaging process is started it is impossible to remove the gold tooth to anneal it.

If a metal tooth form with parallel sides be used, then the contour must be given after the tooth is made, and this is not easily accomplished, and is often neglected or forgotten or overlooked. Such a method possesses one feature that appeals very strongly to the busy dentist, viz., a crown may be quickly and somewhat easily made. But as I see matters it is not the best method, or perhaps a wiser thing to say would be that the method possesses many disadvantages.

Another disadvantage of this method is that the natural tooth is usually reduced to fit the gold crown after the gold crown has been made. I very much prefer to make the gold crown to fit the prepared natural organ.

The method I prefer, if a seamless method is used at all, is first to prepare the natural tooth to receive the crown, then fit a band of copper or German silver, just as the finished crown is to fit, about the cervical portion of the tooth, then take an impression and bits. Mount the model on the articulator, curve the occlusal surface in plaster, then break band and plaster off the model and reproduce this by flowing fusible metal over this accurately fitting tooth. Then into this tooth form swage a cylinder of gold and an absolutely accurate reproduction of the tooth form may be obtained and guess work is reduced to a minimum. For this purpose a very inexpensive apparatus may be obtained, and if a seamless outfit be desired, I know nothing so universally applicable.

And now what about bridge work? Has any change taken place in the method of practice, or has any knowledge been acquired that would tend to produce any marked departure from the methods of former years? I think I am justified in answering this question in the affirmative. Large pieces of fixed bridge work are not so popular, nor so frequently inserted, as was the case but a few years ago. Almost all fixed bridge work is hard to keep clean, and it is an absolute impossibility to keep large bridges clean. For this reason, if for no other, removable bridge work has of late been steadily growing in favor. But lack of cleanliness is not the only drawback to a larger bridge. Suppose a bridge of fourteen teeth is made for the upper jaw, and supported by or on four or five or six natural teeth abutments. To insert or cement the bridge to place after it is made, the abutments must be parallel a condition not often found or easily produced. The assembling of so many small parts very frequently invites disaster. But granted that it is properly made and properly inserted what guarantee have we that one or more of our abutments may not "go wrong" in some way? What then? There is only one thing to do,—to remove the entire bridge, and this often means the destruction of a great part of the bridge, or the ruin of more than the offending tooth abutment.

I do not look upon such bridge work as wise. As I see the truth it is decidedly otherwise. Take the case presented. A molar on either side and the roots of the cuspids and bicuspids in place. What method of restoration might be suggested? Certainly not a fixed bridge. No matter how importunate the request of the patient, nor how alluring the fee that might be obtained, such a method of restoration combines too many possibilities of failure, and too many disadvantages from the standpoint of modern prothesis and oral hygiene.

What method then would I suggest? I would put a shell crown on each molar, a dowel or coping or cap on each of the roots, unite the abutments by means of an irridio-platinum wire, passing from molar to molar and soldered as well to the copings or caps well towards the lingual side. Over this framework, the only part which would be fixed, I would construct a saddle, and this saddle would be attached to the irridio-platinum wire by Gilmore attachments, and to this saddle I would attach some form of porcelain tooth. What advantage would this method possess over a fixed bridge?

Well they are so self-evident that it is hardly necessary to mention them. First, the fixed bridge may be very easily kept clean, and the other part may be removed, and scrubbed and cleansed to the satisfaction of the most fastidious. But in addition to this there is the possibility of restoring the contour of the face by adding a gum to the saddle, and this in itself is of inestimable value. Another change that has marked a very decided advance has been the introduction of replaceable and interchangeable teeth and facings. One of the great drawbacks to crown and bridge work has disappeared since it is no longer necessary to put porcelain teeth or facings through the fire in the process of soldering. In addition to the ease and feeling of safety and comfort with which bridges may now be made, there is no longer any necessity for an unsightly display of gold, and the aesthetic side of our operations has been wonderfully increased.

The putting on the market of Steel's interchangeable teeth and facings, and Goslee's teeth for crown and bridge work, has brought this part of the practice of dentistry to as near a state of perfection as it will probably ever reach.

The use of fixed and removable appliances in combination with the use of Gilmore, Roach and other forms of attachments, has added materially to the solution of a problem that a few years ago was a very serious one,—the possibility of keeping bridge work clean.

DISCUSSION.

Dr. Bush: Mr. Chairman, Ladies and Gentlemen: My natural diffidence and bashfulness is somewhat increased by being asked to open the discussion on a paper by a man like Dr. Thornton. I think he is acknowledged to be the best orator we have in the Dominion of Canada, in the dental profession at any rate, if not in any profession. And for a man having as much bashfulness as myself you can easily understand that I feel a little backward in following so great a man. This is the first time we have heard Dr. Thornton since he reached the position of Dean of the Dental Department of McGill University, Montreal, Quebec, and I think it would be well to take this opportunity of congratulating both the Dental Department of McGill University in securing a man such as Dr. Thornton to preside over it, and also Dr. Thornton, for having had the position offered to him, no small honor to my mind.

When Dr. Thornton, in the opening of his paper, spoke about a dentist's income being at no time any too great I thought either that he had been informed that I was to open the discussion of his paper, or perhaps, along with his other talents, he also had that of a mind reader, for I felt distinctly that it was myself he was referring to.

A man well known throughout the West at any rate, said the best crown that could be put on any of the six anterior teeth was the unbanded Logan crown. Now there is a certain amount of truth in that, and if it were well fitted it was a very good crown; but the trouble is the almost impossibility of getting an equal periphery of crown and root, which I think must have struck all of us, although we may have seen them last for a long time.

I may be a doubting Thomas in casting against porcelain, and we have good men who say they will give us a clinic on that. But personally, I have my doubts. I agree with Dr. Thornton when he says he does not think that in two cases out of a dozen that it can be done successfully. There is, however, a cast base to the same crown which Dr. Thornton overcomes by filling in with solder. I doubt whether it is worth while going into the technique of that cast base or not. The adjustment is made with casting, which is then removed and slipped back on the tooth after it has been fixed. Dr. Thornton talks about the sacrifice of adaption by casting without a gold coping. I have always found it was easier to place the coping on the root and cast on that than casting on a straight model.

Nevertheless, let us remember that there are many men in the profession whose opinion is, that if gold cannot be cast sufficiently accurately to fit a porcelain crown and root, that it certainly should never be used for a filling.

In casting against a gold coping, possibly one reason is that it makes it easier by avoiding some of the usual troubles, such as almost invisible bubbles, and so on, it is a fact that if you even use pure gold to make your copings, they will have a certain amount of spring, and after you have fitted your gold coping to all intents and purposes accurately, it is possible that it springs away from the tooth to which you have adapted it, and the slight shrinkage after casting bringing it back more or less to absolute fit. Now the platinum coping possesses a number of advantages, but it possesses one shocking disadvantage. The shrinkage of platinum is almost nil under ordinary temperatures, or up to the temperature of the melting point of gold, it is very slight or about the same as glass or porcelain. If you get a large thickness of gold on a coping, it will stop any appreciable warp in that coping, but it would be necessary to have a thin lamina of gold here (indicating) over the coping; it unites to the platinum at white heat and on cooling a curve is the result. Do not understand me to say it takes as much curve as this (illustrating), but the curvature is there all the same. Many thermometers of to-day are made of two metals welded together side by side, whose expansive power is of different quality. and change of temperature causes the spiral spring to warp and in that way to mark the temperature.

It gives me much pleasure to look in the face of this very young Thornton crown, and to congratulate the father of such a bouncing baby boy. I believe in the future many of us when time is short will be using the Thornton crown, and I do not believe it will die an early death through measles, teething or anything else.

In the matter of seamless crown, I bought an outfit about eighteen years ago, essentially the same as this plan here. It cost me fifteen or eighteen dollars, I think. It will make a fair crown swageing into a mould in this steel block here, but after you have attended to every detail carefully, it will be found to have occupied more time than making one in the ordinary way. However, I use the seamless outfit, and would not wish to be without it.

Dr. Thornton mentions the fact that in many cases the tooth is ground to fit the crown. I heartily agree with him that all the necessary grinding should be done first and the bands made to fit the tooth after it is ground as nearly perfect as the operator can get. His remarks remind me of a man who had some bridge work done, and he told me this experience of it, that the practitioner who did the work took the impression of the whole thing, and some time after he came back for the bridgework and the dentist fitted him to the bridge, and it certainly looked the part. I quite agree with Dr. Thornton that large pieces of bridge work should not be used under ordinary circumstances without the removal of a bridge, but we all know of the great difficulty we have in persuading patients who come in and say that Mrs. Brown had this and she cannot understand why her mouth cannot be just as good. It is a difficulty, but I think it is best to keep a stiff upper lip and to do that which we think best, for in the end they will thank us. In the case of this movable bridge work, there is one form that perhaps few of you are acquainted with and which I think may, with the introduction of the two recent adjustments, come into general use. It is known as the Parmley-Brown bridge work. About nineteen years ago I went to Chicago to take a course in porcelain work, which covered also this Parmley-Brown bridge work. It consisted in a process much the same as continuous gum work. Perhaps it produced the most artistic bridge work, but it had the disadvantage of a saddle being permanently fixed in the mouth. I believe if a man wanted to do the very best that could be done in a case where just the six or ten anterior teeth were to be replaced with Gilmour attachments, the old Parmley-Brown bridge work with the platinum saddle over the whole thing, and those attachments, you would make just about as perfect a piece of bridge work as you can at the present time imagine.

I know Dr. Thornton will forgive me when I say that I can hardly believe him to mean it when he says that the introduction of Goslee teeth (and I am in their favor, although we have not had them on the market in the West. Any of you who have seen the Goslee teeth will agree with me), but I cannot believe that Dr. Thornton really meant to say that we had reached in that or anything else as near perfection as we ever would get. Lord only knows what may come in the future. I agree with Dr. Thornton that we have reached a great stage of perfection and it may be many years before we see an advance, but I should not like to agree in the probability of its being as perfect as we shall ever get. (Applause.)

DR. PIPER: Mr. Chairman, Ladies and Gentlemen: I am afraid I can add very little to what has already been said. Dr. Thornton is a man who has had great experience in this, having conducted a large practice himself, and being demonstrator in Toronto, I am sure that he has given us perhaps the latest and the best. Dr. Thornton was speaking of the Parmley-Brown outfit. I made a bridge from a molar to a biscuspid about fifteen years ago; I think I excised the second bicuspid, placed a post over the coping, and made a platinum molar. I saw that bridge last winter, and it is doing just as good work as it was, I think, a month after it was put in. There was an instance of a platinum coping tightening to the gum, and fitting it. I think we made a very good selection, gentlemen, when we asked Dr. Thornton to come and give us this paper this afternoon, and I am sure that we are all very grateful to him in so doing.

DR. CAMPBELL: There is one thing that Dr. Thornton said with reference to shell crowns that I do not quite know whether I got a wrong impression or not. He said that shell crowns for molars and bicuspids will always be in use. Now I am of the opinion that they will go out of use entirely from the aesthetic point of view, and in the course of time I think even molar crowns will be out of use entirely except in some cases of bridge work.

DR. CLINT: Mr. Chairman, Ladies and Gentlemen: I am very much pleased this afternoon to have the privilege of listening to Dr. Thornton's very excellent paper on this extremely important subject. Crown and bridge work was very slow of development. It is a long time since I undertook to do my first little crown work. I have been in the West twenty-two years, but before that crown work was introduced through some of the leading men in the profession and it got into the journals, and it has been my privilege, and I think with sense, to subscribe to our journals from time to time. I read these articles on crown work and made the attempt to build crowns. It would take too long to relate the various experiences I have had in the building of crowns. However, they have reached a stage of perfection, notwithstanding Dr. Campbell's criticism of the shell crowns for bicuspid and molars, that a great many patients are furnished with defective organs for mastication on roots which would be really useless unless handled in the manner in which they have been up to present period. We hope the future will bring further developments, however.

I have never attended a convention but what I have gone away feeling greatly enriched as a professional man, and in coming to this convention this year, and meeting so many that I have never met before, exchanging a few ideas with this one and that one, as I have met you, from time to time, I find that I have been gathering something, and feel that I am enriched by my visit to Calgary. I ran against Dr. Thornton shortly after he got here. We had met several times before and exchanged yarns and experiences, and I found that he gave me a little hint in connection with the repairing of bridges which were fixed. There are many of them you know, and they are always liable to accident, and the facing is very liable to come off, and I thought I had a good plan, and so did Dr. Thornton. He said: "That is all right, but don't you think I have something better?" I am convinced now that he has something better. I am not going to attempt to describe to you what he told me, but I really want him to go to the special trouble of describing this course of procedure to replace a broken facing, and I think in doing so, I have done you all a great favor. favor.

THE CHAIRMAN: Has any one any questions to ask Dr. Thornton?

DR. GARVIN: Mr. Chairman, Ladies and Gentlemen: Yesterday I was unfortunate in knowing the chairman, at this time perhaps in knowing the essayist. There are one or two points that I would like to ask the essayist about in closing the discussion. I did not intend to speak on this paper, and I have spoken too often already at this convention; but I would like to ask his opinion as to the advisability of using platinized gold instead of pure gold. It is not so apt to burn as pure gold in casting, with the gold very hot, as with an exygen flame, and it is cheaper than platinum, and I think perhaps it has many advantages over pure gold or platinum for purposes of that kind.

The other men who spoke had not criticized this paper at all. I know the essayist well enough to know that he will accept any criticism very kindly. This type of solder crown designed here does not appeal to me. I think that this same crown with the gold swaged over the root end, and the rest of it cast, would give just as fine a result as the crown he has here. I do not think finer, but I think just as fine a crown. Speaking of ideals, no doubt a better result can be had by swaging that coping over the end of the root. I believe that in burnishing back over the end you have a result very inferior to simply pressing the wax to the end of the root and moulding it carefully. If you want an improvement on that it must be swaged.

Any operation which can be simplified or done by some one else to save the operator's time appeals to me, and in this case any lady assistant who is capable enough to be in an office should be able to cast it, while it is much more difficult to get a lady assistant in an office to do that soldering and do it nicely.

With regard to the seamless crown outfit, I think that they might easily be discarded for the same reason. In the case of the ordinary crown where the cusps are soldered to the band, all that the operator would have to do would be to fit the band. In this case there is considerably more work in fitting a crown of this type. A gold crown, from an ideal standpoint, should never be used where they will be seen, although it does not matter much whether they are seen or not.

DR. GREENFIELD: I would just like to ask Dr. Thornton one question with reference to his boy. If there is any play, Doctor, between your post and your receptacle in the crown,—supposing you had to put a crown on two or three times to get an adaptation, are you always sure of getting it back in the same place every time?

DR. THORNTON: I think so, Doctor, because as soon as you have put it down once, it makes a seat for itself.

DR. GREENFIELD: Of course, it will have the depression in the crown to fit in every time.

DR. THORNTON: Mr. Chairman, I will take up very little of your time. Reference was made by Dr. Bush to the use of Logan crowns, and that they are perhaps as perfect as any can be made. Logan crowns have always had, and will have, the disadvantage that the pin is made of pure platinum, which, of itself, is very soft, as it is baked in, and the heat necessary to bake the porcelain was so great that the platinum was always affected, rendering it the softest possible pin.

You will all know that the pin becomes labially displaced nearly always, not necessarily so because the Logan crown is made with a superabundance of porcelain on the lingual side. We leave that bite too heavy and the space behind soon causes disintegration of the root to which it is attached.

Reference was made to the question of casting or soldering, and that casting was used primarilly for filling the teeth, but if perfect adaptation could be made by casting a gold inlay, then equally perfect work could be done by casting to base of the crown. The conditions, however, are not analagous. In a tooth you have a well defined marginal ridge which does not occur in the end of a root. It is true that the end of a root is well defined, but we always have an overlapping portion of gum tissue, and when we put that there it leaves a tissue as well, and when you take it out it is a little ticklish to carve the wax so that you get a perfect outline of the end of the root. Then you nearly always have a thin layer or lamina of moisture over the end of the root, and that has a tendency to chill the wax, so that my own opinion is that a very much better adaptation can be obtained by using the pure gold.

Reference was made by Dr. Garvin to the fact that he thought it could be done more quickly. That is one reason why I discarded it. I found that this could be done very much quicker. Also it can be done by the girl or boy in the laboratory, as well as by the operator himself. I was in an office in Chicago of that gentleman who was drowned in Lake Michigan a few years ago. He had six or seven girls in his laboratory, and they did all the soldering. Women can learn to solder as well as a man, and their fingers are more delicate, and they learn to do soldering very much more beautifully than most men do. Now I think that this process can be much more quickly done than by burning out your wax, and heating it and all that kind of thing. Then you have the advantage that Dr. Garvin mentions that you always have a smooth surface adapted to the end of the root, and over the adaptation of the porcelain.

Let me ask you this question, and you can answer it in the privacy and sanctity of your chamber: How many of you cast a base for a crown and then put your porcelained crown on and cement it without touching it up a little bit? Talking of the fact that I said that shell crowns would pay you, Dr. Campbell said, I think, that I said they would always be extensively used, and one advantage of reading a paper is that you can always refer back to it. "So far as can be seen at the present time, shell crowns for molars and bicuspids must always be part of the routine of the daily life of the dentist." For this reason, that the sacrifice of any part of the tissue is always to be deplored, at the present time I cannot see how an attachment as solid as a shell crown can be made to a perfect molar or bicuspid. We can conserve the greatest amount of tooth tissue by the use of a shell crown, and we give the strongest possible attachment. So at the present time we are going to continue to make them. Now the reason I drew your attention to this was simply that I was asked a few months ago to see a demonstration on a seamless crown outfit where the crown was made by being driven over a perfect molar. It is true that a molar might be driven through a piece of wood or lead, and something resembling a tooth made in that way. Afterwards you have to use a pair of pliers, and most men find it difficult to reproduce the molar with a pair of pliers. Therefore, I would prefer to make it like the molar to start with. Personally, if I was to give you some advice, my advice would be never to buy a seamless crown outfit of any kind. They are not necessary or universally applicable, while the sectional method can be done in the laboratory, and is absolutely universally applicable.

Now just one word more in regard to a method of repairing broken facings. I don't know how I got hold of this, but I try to pass on anything I get, and these conventions should be made as practical as possible. Suppose you have a facing broken from a bridge. It does not make any difference what tooth it is. When the porcelain is broken, the pins are always left on the bridge. Now you get a facing to fit, and if you could get rid of the pins in the facing, in some way, it would be a Godsend, and use the pins in the bridge. Now how are you going to get rid of the pins in the porcelain facing? Just take a little piece of copper,—any piece of thin copper, and make a little cylinder, about half an inch long, large enough to go over the pin that is in the porcelain that you are going to put on. A little cylinder to slip down over the copper, and then solder into that half-inch cylinder a broken burr. Put the burr into the engine and take some of that carbo copper powder or ordinary emery powder, dip the cylinder into some emery powder, and you can put the cylinder over the pin and revolve it rapidly and you can cut that pin out in one minute. At a meeting given in Toronto I cut two pins out in two minutes. Dip it in glycerine, and then in emery powder, and it will go down as far as the pin is, and when it is cut right down as far as the head take a pair of pliers and take out the head, and you will have the two holes there instead of the two pins. Fit the pins on your bridge on to those holes and put cement into it. Now the Ash people got out a repair, with a dove-tail business, but that is difficult to fit as a rule. All the porcelain you cut away is the porcelain immediately around the pin. I gave a demonstration in Toronto and made three or four of those, and some of the doctors there were delighted with them. Dr. Stephenson, of Montreal, was speaking to me about it the other day, and he wanted to know how I made them. It is a very simple process indeed.

I am very grateful for the patient way in which you have listened to me, and for the pleasure it has been for me to come here. I wanted to come West, and I have been exceedingly surprised at many things I have seen. Just after I left Winnipeg on Sunday afternoon, I saw a sign that surprised me more than anything else. I read the papers pretty constantly, and I knew that the towns of the West were growing, and that there are lots laid out beyond the immediate residential districts in most of the towns. Just after I left Winnipeg, I saw a sign which read: "Vancouver, 1,477 miles." Now that is a short distance here, but I did not think they would have laid out the city so very far East as that.

THE CHAIRMAN: I am sure, Dr. Thornton, we are very pleased to have you with us to-day and to listen to your excellent paper, and we expect to hear a little more from you this afternoon.

Dental Societies

SIXTH INTERNATIONAL DENTAL CONGRESS LONDON, AUG. 3RD TO 18TH, 1914

NATURE AND SCOPE OF THE MUSEUM.

It is intended that the Museum shall be an International Collection of objects of interest, and be representative of every Section of the Congress. Its Nature and Scope include the following:—

1. Specimens showing the Evolution of Tooth Forms and of the Dentition of Man. Histological Preparations bearing upon recent research. Exhibits illustrating the Chemical Composition and Physiological Action of the Saliva.

2. Specimens of Morbid Conditions of the Teeth, Palate, Gums, and Jaws, such as Odontomes, Dental and Dentigerous Cysts, New Growths, Diseases of the Periodontal Membrane, &c. Photomicrographs of Oral Micro-Organisms, and Cultures of Micro-Organisms in Test Tubes or in Petri Dishes. New Bacteriological Apparatus and appliances.

3. Specimens of Teeth, Gums, and Jaws affected by "Pyorrhœa Alveolaris." Microscopical and Lantern Slides of the same. Exhibits of various New Methods of "Inlaying" Cavities in Teeth. Exhibits of New Methods of "Crowning" Teeth.

4. Radiographs of the Normal Dental Tissues, and of Diseases of the same and Associated Parts.

5. Exhibition of various kinds of Articulators. Specimens showing the various Methods of "Pressure Casting." Specimens showing modern forms of Continuous-Gum Work.

6. Models showing Abnormalities in position of the Teeth, and Appliances for the correction of the same.

7. Specimens illustrating Methods of Dealing with Surgical Conditions of the Teeth and Jaws, including Cleft Palate, Harelip, Fracture and Resection of the Jaws.

8. Specimens illustrating the History and Evolution of Anæsthesia.

9. Photographs, Charts, Diagrams, Specimens, and Statistics of School Clinics. Methods of the Instruction of the Public in the principles of Oral Hygiene.

10. Instruction Forms, Charts, Diagrams, Specimens and Demonstration Models used in relation to Dental Education. The Specimens will include those employed for teaching purposes, and also Specimens of Work of both Students and Pupils, completed in accordance with the definite courses given.

11. Historical Objects of Interest, such as Books, Instruments, Pictures, &c.

REGULATIONS.

1. Intending exhibitors must give full information with regard to the exhibits suggested for inclusion in the Museum on the application form. Exhibitors are requested to *send in the Application Forms as early as possible.* Those received after June 30th, 1914, cannot be considered, and lists of exhibits sent after this date cannot be printed in the Official Catalogue.

2. All exhibits must be received, properly packed (see below), registered and carriage paid, at the University of London, South Kensington, London, S.W., on or after Monday, July 13th, and before July 20th, 1914.

3. The Committee has the absolute right of acceptance or refusal of the exhibits.

4. The Committee reserves to itself the right of arranging the exhibits.

5. The Committee will be responsible for the proper exhibition of the several exhibits, and for their secure packing and dispatching on return. All exhibits will be insured, and any claim for compensation for damage or loss must be made within three months of the closing of the Museum.

6. Any exhibitor making a communication to a Section may arrange with the Hon. Curator of that Section for his specimens to be available at the Sectional Meetings, in which case the exhibitor shall be responsible for the safe return of his exhibit uninjured.

7. No specimen may be removed from the Museum cases without the consent of the Committee.

INSTRUCTIONS FOR SENDING SPECIMENS, ETC.

A. All specimens of a brittle nature should be *securely packed* in wooden boxes, *on the lid of which the name and address of the exhibitor should be painted or written.* On the inside of the lid a written list of the contents should be affixed.

B. In the case of wall diagrams and other objects of a non-brittle nature, parcels should be made, and the inscriptions should be affixed to the paper covering as under A.

C. *Each specimen should have some distinctive label attached to it, in order that it may be identified, and should be numbered according to the Section of the Museum in which it is to be placed.*

D. The box should have a large label nailed on, with the address as follows, legibly written upon it. Write for application blanks.

6TH INTERNATIONAL DENTAL CONGRESS.
(LONDON, 1914.)
Section........ (Please specify Number of Section).
MR. F. N. DOUBLEDAY,
Hon. Secretary, International Dental Museum,
University of London,
South Kensington, London, S.W.

SECTION OF ORAL SURGERY AND SURGICAL PROSTHESIS.

The subjects for discussion are:—

1. Surgical Prosthesis of the Jaws.
2. Late results of Cleft Palate Operations.
3. The Treatment of Dental and Dentigerous Cysts.

One morning will be devoted to each subject; the rest of the time will be devoted to papers on subjects of surgical interest in the mouth.

The Committee of the section is desirous of obtaining the names of gentlemen willing either to discuss the subjects reported on, or to read papers of surgical interest, no matter how short.

HAROLD P. AUBREY, Hon. Sec.,
40 Curzon Street W.

THE PANAMA PACIFIC DENTAL CONGRESS

OPENS AUG. 30TH, 1915

The work of organizing the Panama-Pacific Dental Congress is progressing in a most satisfactory manner, and it is confidently expected that by January first, 1914, twenty months before the opening of the Congress, all the preliminary work of organization will have been accomplished.

A few foreign countries and a few of our States have yet to appoint their Executive Committees to carry on their part of the work of publicity and securing program and memberships. Within the next two weeks invitations will be sent to those who are selected by the Committee of Organization to act as officers of the various sections of the Congress, and in each case an urgent request will be made for a prompt reply, that there may not be experienced in this matter the delay which in some cases has attended the appointment of state and national Executive Committees.

Three hundred thousand "stickers" bearing the seal of the Congress and the date on which it will convene, have been sent to dealers in dental and pharmaceutical preparations throughout the world, all of whom have expressed a willingness to attach them to every package and letter sent to their customers between now and August 30th, 1915. Demands are already being made for more "stickers," and probably one hundred thousand more will be distributed. The Congress will in this way be brought to the attention of every dentist in the world, not once, but many times, and no one will be allowed to forget the date on which he should be in San Francisco to participate in what promises to be the world's greatest Dental Congress.

Work is progressing rapidly on the Auditorium in which the Congress will meet, and it will undoubtedly be housed in one of the largest and most complete buildings ever erected for such a purpose.

The Congress will be in keeping with the Exposition of which it forms a part, and every effort will be made to provide for the comfort and entertainment of every member. That work on the buildings for the Exposition is advancing rapidly may be noted from the fact that Machinery Hall is now over eighty-five per cent. finished. This building is 968 feet long and 368 feet wide. Over 7,500,000 feet of lumber has been used in its construction, and it is the largest frame building in the world.

SOUTHERN MICHIGAN DENTAL ASSOCIATION

The Southern Michigan division of the State Dental Association held their annual convention November 17, 18 and 19, with 78 members present. Several interesting clinics were held, including Dr. Lyons, of Jackson, Mich., who extracted an impacted third molar in one hour and twelve minutes. Dr. Griffin, of Detroit, demonstrated a new nitro-oxygen machine with a woman as patient, and removed the third lower right molar, under gas, in 15 minutes, and the patient was conversant with the operation, which was without pain or annoyance.

The officers elected for the year 1914 are Dr. S. J. Lewis, of Kalamazoo, as President; Dr. B. R. Parrish, of Battle Creek, as Vice-President, and Dr. R. A. Bowie, of Three Rivers, as Secretary and Treasurer.

OFFICERS
DENTAL SOCIETY OF WESTERN CANADA, 1913-1914.

President: Dr. F. C. Harwood........Moose Jaw
Vice-President: Dr. O'Neil......Western Ontario
Dr. Manley Bowles.....................Manitoba
Dr. Irwin.......................Saskatchewan
Dr. Callum...........................Alberta
Secretary: Dr. E. S. Cox............Moose Jaw

Credentials Committee.

Dr. Blatchford and Dr. Simpson............Ontario
Dr. K. C. Campbell and Dr. C. H. Moore....Manitoba
Dr. S. A. French and Dr. E. M. Doyle......Alberta

Programme Committee.

Dr. Johnson, Dr. Rundle, Dr. Winthrop, Dr. Sest.

ONTARIO DENTAL SOCIETY

The next annual meeting of the Ontario Dental Society will be held in the College Building, Toronto, on February 16, 17 and 18. The program (with the exception of clinics) is almost complete, and the essays will be of a most practical nature.

Dr. Hillyer, of Brooklyn, N.Y., will give a paper on "Some of the Difficulties in Prosthetic Dentistry."

Dr. Voelker, also of Brooklyn, will treat the subject of the "Silicate Cements" in both paper and clinic.

Dr. Montgomery, of Buffalo, N.Y., will present a paper and clinic on "The Impression or Indirect Method of Making Cast Metallic Inlays." It is expected, also, that a paper and clinics will be given on the "Direct Method of Cast Inlays."

The committee also feels confident in announcing a paper by the great exponent of thorough mastication, Mr. Horace Fletcher, who will be with us, unless some unforeseen occurrence calls him out of the country before the dates set for the meeting.

Railway rates, on the Standard Certificate Plan, will be available from Feb. 12th to 21st, inclusive. This means that if over three hundred members attend, the rate will be single fare return, good for ten days, less than that number, fare and one-third.

A good list of clinics is being arranged by the Clinic Committee, Dr. W. B. Amy, chairman, 190 Avenue road, Toronto.

Exhibit by Manufacturers of and Dealers in all Dental Goods.

GEORGE W. GRIEVE, *Chairman Program Committee.*

2 Bloor St. E., Toronto.

THE NATIONAL ASSOCIATION OF DENTAL FACULTIES.
INSTITUTE OF DENTAL PEDAGOGICS.

The National Association of Dental Faculties will meet in Buffalo, New York, at 10.00 o'clock on the morning of January 26th, 1914. This is in accordance with the resolution adopted at the last annual meeting to meet in conjunction with the Institute of Dental Pedagogics. The Executive Committee will meet at 9.00 o'clock on the same morning.

THE YOUNG MANHOOD ASSOCIATION

HERBERT A. McKIM, D.D.S., L.D.S., Toronto, President of a Province-wide movement whose objects are given below.

The Ontario Young Manhood Association is the outcome of a feeling of discontent with temperance conditions in Ontario among the young men of the Province.

There are scattered all over the Province, in all the churches, organized bodies of men, particularly young men, such as brotherhoods, bible classes, etc., and also Y.M.C.A.'s representing perhaps 100,000 men.

H. A. McKIM, D.D.S., L.D.S.

The thought behind this movement is to link up these bodies into a mighty force having no party or denomination ties in respect to the question of temperance.

To this nucleus we hope to add every clean young man in the Province and even the "bum."

The following is the policy outlined:

(1) The organization shall be known as the Ontario Young Manhood Association.

(2) The purpose of the organization is primarily to abolish the liquor traffic from the organized effort on the part of the young manhood of the Province.

(3) It is the aim of the organization to embrace all classes of young men in Ontario irrespective of creed or party politics, while one of the chief ideas in organization will be to build the young men of the Province into a powerful balloting force; its members individually and as an organization are resolved to maintain a strictly non-partizan attitude on questions of temperance reform irrespective of party affiliations on other issues.

(4) This organization places secondary importance the abolition of the liquor traffic from Ontario to providing for those who now patronize the bars of practical social substitutes, that will serve the purpose of social intercourse without the bar's attendant evil influences and one of the essential objects of the organization shall be to endeavor to see that such a condition of affairs is brought about in the event of any general prohibition legislation going on the statutes.

(5) This organization shall endeavor to do all in its power to see that

the laws with respect to temperance are properly enforced in the areas in which it visits.

(6) This organization shall be financed by popular subscription.

A button has been adopted with Ontario coat of arms inbedded on a blue black ground and the slogan "No Booze."

A peculiar thing is that of the organization committee of ten only one happened to be a Liberal, so that the above did not spring from the Rowell camp.

MONTREAL DENTAL CLUB

The first meeting of the Montreal Dental Club was held in the University Club rooms, 401 Dorchester Street West, on Thursday evening, November 20th. Dinner was served at seven o'clock, and the meeting opened at eight o'clock.

Dr. F. M. Wells read a paper on some observations of special interest to dentists on his recent trip to Labrador, and Dr. Stanley Burns gave a few minutes' talk on the treatment of pyorrhea, of which he is making a specialty.

The following applications for membership were accepted: Dr. Leo Doran and Dr. A. W. Strang, proposed Dr. Dohan, seconded Dr. Stuart; as honorary member, Dr. A. W. Thornton, proposed Dr. Stuart, seconded Dr. Dohan.

The Committee has arranged the following program for the balance of the season:—

December—A paper by Dr. E. J. Stuart on Ancient Dentistry. Dr. Stuart has made arrangements with the S. S. White Co. for the loan of their collection of ancient artificial dentures and appliances for this meeting.

January—A paper by Dr. A. W. Thornton, the subject to be decided on later.

February—As in past years, the Club will hold its annual outing during this month.

March—The committee is in communication with several good men for this special meeting, and can promise a very interesting paper for this month.

April—The annual business meeting and election of officers, also a paper on Dental Fees.

Arrangements have been made with the University Club to hold the meetings hereafter in their new club house. A first-class dinner will be served at $1.50 each.

All meetings will be held on the second Wednesday of the month, or as near that date as possible. It is hoped the members will all make special efforts to attend as many of these meetings as possible, thus helping to make this a successful year for the Club.

Correspondence

CANADIAN DENTAL ASSOCIATION

Winnipeg, May 26, 27, 28, 29, 1914.

314 Somerset Block,
Winnipeg, Dec. 18, 1913.

To the Editor Dominion Dental Journal:
Toronto, Ont.

My dear Editor,—In my last letter I intimated that I would write you shortly advising you further as to plans for the Canadian Dental Association Convention.

Five men were invited to be our guests. Dr. C. N. Johnson was unable to accept on account of other engagements abroad. The other four have accepted and are Mr. E. J. Carson, a prominent lawyer of Calgary and solicitor for the dental profession in that province, who will give an address on the business side of professional life; Dr. Forrest Orton, of St. Paul, Professor of Crown and Bridge Work in the Dental Department of the University of Minnesota, who will give a paper entitled, "Problems Involved in the Standardization of the Color of the Human Teeth." Dr. Thos. B. Hartzell says of this lecture that it is the best interpretation yet advanced of this problem. Dr. Orton will also give a clinic on Crown and Bridge work. Dr. W. D. N. Moore, of the Chicago Dental College, well known to the Canadian fraternity as a leader in the profession, will give an address and clinic on some phase of operative dentistry, subject to be announced later, and Dr. J. H. Prothero, of the North Western University, Chicago, who once before delighted the Western men at a Convention in Winnipeg, will give an address and clinic along lines pertaining to prosthetic dentistry.

I think I have already mentioned that splendid accommodation has been secured in the Industrial Bureau.

I have just written a letter or small book to another journal in reply to an editorial which questioned the dates of the Convention. My line of thought was that Western men would prefer an earlier rather than a later date so as not to interfere with their holiday plans. There was a compromise made in favor of Eastern men for these reasons: First, the special summer railway rates from Winnipeg to the Pacific Coast begin June the first, thus permitting men from the East to take advantage of these rates immediately after the Convention. At present negotiations with the railroads are under way to have, if possible, the standard certificate of a delegate East of Winnipeg extended for say six weeks if such delegate purchases a ticket from here West. Further it is only necessary to have one hundred outside men with certificates here in order to obtain single fare. Second, many Eastern men have made or wish to make investments in Western lands and might take this opportunity of making a tour of inspection, and there is no better month to take such a trip or any better time to visit Vancouver and Victoria than in the month of roses, June. Third, the Canadian colleges are closed and the professors would be free to attend. Fourth, a boat trip over the great lakes would be greatly enjoyed for those favoring this plan of travel. Fifth, those Eastern men who would not care to plan a holiday trip to the Pacific coast, who are in the habit of holidaying, say in August in some Eastern summer resort, could get away in May for a few days to attend the Convention easier than in July, which would be within a week or two of their regular holiday season. In fact, we are impressed with the fact that as far as the C. D. A. Convention is concerned it cannot well be made part and parcel of a holiday scheme and made a success, however true this may be of an international convention where the distances are much greater.

Judging from the past it is questionable also whether the C. D. A. Convention should be held in July or August. The statement has been published that seven out of ten Toronto dentists have said that May would be most inconvenient, and that July or August would be preferable. Now it would be well to recall how many of these men attended the C. D. A. Convention the last time it was held in Montreal at a later date than we have chosen, well to look into statistics at the last meeting in Burlington, a stone's throw from the capital city, when innumerable men found it apparently impossible to close their offices and get away for more than half a ay or so, or some not at all. In the case published it may be that the men interviewed had previously read in said journal that it would take them two weeks away from their offices in order to attend, which is not the case. I do not in any way wish to call down the Toronto fraternity and those who live in the vicinity who have many opportunities and professional advantages, opportunities to hear great men and study great themes that their brethren from more distant points have not, but rather to defend our position.

The Western men are taking hold of this for the first time and intend holding it when they believe it will be most advantageous for the greater number interested or who should be interested.

In the publication referred to it was shown that it would take a Maritime dentist three weeks away from his office and an Ontario man two weeks in order to attend. We would rather say that it would take a man as far East as Montreal just five days away from his office and in that five days gain benefits of life-long and inestimable value. A man leaving Toronto or Montreal on Saturday night, May 23rd, would arrive in Winnipeg Monday afternoon, May the 25th, and Monday being a public holiday in celebration of the 24th, which falls on Sunday, he would thus far lose no time from his office. He could attend the Convention here for four days, leaving for home Friday night and arrive home Sunday afternoon, or a Toronto man could leave here as late as Saturday afternoon at 1.30 o'clock and arrive in Toronto early Monday morning in time for a ten o'clock appointment.

We trust that the DOMINION DENTAL JOURNAL will give the project all the publicity possible and that its editor in every other way will use his influence to bring about a large and representative delegation from Ontario, Quebec and the Maritime Provinces.

Yours sincerely,

M. H. GARVIN,
Sec. of the C. D. A.

EDMONTON DENTAL SOCIETY.

The Edmonton Dental Society held its annual election of officers on Tuesday, November 4th. The following officers were elected for the following year: President, H. V. Whittaker, D.D.S.; Vice-Pres., Don Marion, D.D.S.; Sec.-Treas., Mort A. McIntyre, D.D.S.

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MEDICAL AND DENTAL INSPECTION IN PUBLIC SCHOOLS

At a meeting of the Ontario Oral Hygiene Committee held in Toronto, November 17, 1913, Dr. Struthers, Chief of the Medical Inspection Staff of Toronto, asked those present to say whether the Medical Inspection of school children should come under the Department of Education or the Department of Public Health. Few of those present ventured an opinion. Perhaps it was because the Dental Educational Committee of the Toronto Dental Society had taken the ground that the care of children's teeth was a matter of public health and not of education. Working upon this basis a Civic Dental Clinic was organized under the Board of Health. Later, however, the Board of Education organized two or three other clinics. It was clear which side of the question Dr. Struthers favored, and it was equally clear which side of the question those present had favored in the past. There could hardly be a debate of such a serious question at a banquet.

This *is* a serious question and there will be debate argument and bad feeling before it is settled. All organized bodies elected by the votes of the public are exceedingly jealous of their prerogatives. Boards of Education elected by the people acting under the Department of Education are not going to allow Boards of Health elected by the same people and acting under the Department of the Provincial Secretary to usurp their powers. Neither are Boards of Health going to allow Boards of Education to usurp their powers. Each body is similarly elected and works under similar regulations. The work of each overlaps the other. The condition of the schools may be a menace to public health, and the condition of the homes may be a menace to the schools. At present it would seem that the school boards are investigating the homes of the children as well as looking after the schools and the Boards of Health are investigating the conditions of the schools as well as looking after those outside of the schools. This looks like overlapping, and is bound sooner or later to lead to conflict and inefficiency. In many parts of the United States the fight is on. The city council of Toronto threw down the gauntlet the other day when they decided to ask the Legislature to give them power to inspect the children of the public schools of Toronto. This question is much larger than what it might seem at first thought. It isn't one of whether Dr. Struthers or Dr. Hastings is going to look after the health of the children of the schools or not, but it is one of how the work can be done the most economically and most efficiently. The difficulty is of deeper origin than the merits of two officers.

It is the old question again, What is education? The Department of Education of Ontario has held and still holds the view that education consists in teaching children how to read, write, spell, and do sums, and if of gentle birth to teach them some Latin, Greek, and Hebrew which they promptly forget. Knowledge by which a man might win a livelihood is vulgar and not an education at all. This view of education caused the establishment of the Department of Agriculture as a separate Department, no man in Ontario to-day, not even the Minister of Education of the seventies if he were here could go through those buildings at Guelph and follow the courses given and dare say that the young men and women there are not getting an education. There *is* such a thing as an agricultural education and agriculture should be under the Department of Education. It is safe to say that the greatest hindrance to agricultural progress in Ontario to-day is this obsolete view of education. The Department of Agriculture has to struggle with the handicap of teaching to adults what should be taught to children. President Creelman has said many times that there should be small farms in connection with rural schools where the principles of agriculture should be taught, but this can never be done until the teachers know something about agriculture and the teachers will never be taught anything about agriculture until the Department of Education can appreciate that there is such a thing as an agricultural education.

Technical schools have had a long and hard struggle for recognition as educational institutions. They have met with greater success than agriculture because the captains of industry being men of influence wanted skilled laborers. Technical schools are still struggling around the doors of the Department of Education. They are not yet admitted into full brotherhood with the collegiate institute which gives an education by study of the lake poets and dead languages.

Commercial education has been forced upon the Department of Education in about the same way as technical education. Admitted but not acknowledged.

Education in public health is now struggling without the door. The Department of Education can see neither science, art nor literature in it. An education does not protect one's health that he may better enjoy his physical existence.

In the past Boards of Health have contented themselves with looking into garbage pails, upsetting milk cans and locking up the sick. Officers of health have arrived at the conclusion, after many years of wandering, that it is cheaper and better for all concerned to prevent disease by education than by the police. So now there are public lectures on hygiene, tuberculosis, typhoid, infant mortality, sex hygiene, etc., etc. Education of the adult again while the children remain in ignorance. Health officers are no longer police officers, but educators, and should be in the Department of Education. There is talk of establishing a Department of Public Health in the Ontario Legislature. This would be a mistake. What is needed is a Department of Education which should embrace all branches of education, and in which the regulations of each branch should have the concurrence of the responsible heads of every other branch.

If this were done Boards of Education and Boards of Health would be united for educational purposes, and there would be no overlapping and the work would be more economically and efficiently done.

Dr. Farris S. Sawaya has removed from 57 Charlotte street, St. John, N.B., to Rooms No. 3 and 4, Imperial Theatre Building.

The members of the Oral Hygiene Committee of the Ontario Dental Society met in Toronto, November 17, 1913.

Dr. F. E. Bennett has been elected to serve a third term as President of the St. Thomas Horticultural Society.

REVIEW.

Popular Essays Upon the Care of the Teeth and Mouth. By Victor C. Bell, A.B., D.D.S., Lecturer of the Board of Education, New York City; late Lecturer at the New York Dental School; Senior Demonstrator in the New York College of Dentistry and Dental Surgeon to the German Polyclinic. This book has received "honorable" mention at the Pan-American Exposition. Tenth edition, carefully revised. Adopted by the Board of Education of New York City as a text-book and supplementary reader in the schools. Parker P. Simmons, 3 East Fourteenth Street, New York, 1912.

A book of one hundred and forty pages which has gone through ten editions in less than twenty years. This and a companion reader for use in the public schools have been adopted for use in the public schools of New York City. The small book is well illustrated and adapted for the use of children in the lower grades. This one is intended for the use of adults. It is suggested as a suitable book for the dentist's waiting room. The essays are distinct from each other and yet they cover the subject of Oral Hygiene rather completely. There are many bad expressions, e.g., "ulcerated teeth," "price." Dentists interested in education of the public in dentistry should read it. Boards of Education should read the small book, so that they might understand its suitableness for children.

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